Dick Markley, NC District Ranger
supervision, technical assistance

Bill Haire, NC District Resource Officer
technical assistance

Bonnie Petitt, TNG Recreation Program Manager
technical assistance

Doug Pewitt, TNF Trails Program Manager
technical assistance

Phil Horning, TNF Landscape Architect/Recreation Planner
technical assistance

Bill Slater, NC Ranger District Archeologist
technical assistance

Renee Babros, NC Ranger District Law Enforcement
technical assistance

Greg Schimke, NC Ranger District Minerals Officer
technical assistance

Ray Patton's signature on the cover sheet certifies that he is authorized to represent the other two signatories on the MOA in dealings related to the execution of the contract with CALFED.

VII. COMPLIANCE WITH STANDARD TERMS & CONDITIONS

The California Department of Parks & Recreation will serve as lead agency and primary applicant for purposes of grant administration, contracting, supervision, etc. As no separate contract requirements are known at this time (and won't be known until it is determined which agency will administer the Local Watershed Stewardship contracts), general terms and conditions outlined are agreeable to and able to be complied with by the California Department of Parks & Recreation, as indicated by the signature of Park Superintendent J. Ray Patton on the cover page (Attachment H).

APPENDIX A

Nevada County Proposition 204 Steering Committee Memorandum of Understanding

MEMORANDUM OF UNDERSTANDING

Between the

Nevada County Resource Conservation District, County of Nevada, US Forest Service, USDA Natural Resources Conservation Service, California Department of Forestry and Fire Protection, California State Parks, Northern Sierra Air Quality Management District, North San Juan Fire Protection District, Yuba Watershed Institute, South Yuba River Citizens League, City of Nevada City, Bureau of Land Management, Nevada County Superintendent of Schools Office, Friends of Deer Creek.

This Memorandum of Understanding (MOU) is made and entered into between the above signatories.

I. PURPOSE

The purpose of this MOU is to establish a framework upon which the parties may cooperatively plan mutually beneficial work projects and activities envisioned by the State of California Proposition 204, California Water Code, Division 24, Safe, Clean, Reliable Water Supple Act, Article 5, Delta Tributary Watershed Program.

II. INTRODUCTION

WHEREAS, all parties have a mutual interest in developing watershed rehabilitation projects to protect regional water quality and corresponding watershed properties for the public good; and

WHEREAS, all parties have the public responsibility to identify and take corrective actions where water quality may become degraded; and

WHEREAS, all parties administer properties that are eligible for grants provided under the Delta Tributary Watershed Program.

NOW, THEREFORE, in consideration of the above premises, the parties hereto agree as follows:

III. PARTIES AGREE TO

1. Actively pursue opportunities for mutually beneficial work projects or activities that fit under the Delta Tributary Watershed Program.

2. Enter into supplemental agreements or other legal instruments with each other to implement any grant funding received under the auspices of this program.

IV. GENERAL TERMS AND CONDITIONS

1. This agreement is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement or contribution of funds between the parties to this instrument will be handled in accordance with applicable laws, regulations, and procedures including those for Government procurement. Such endeavors will be outlined in separate agreements that shall be made in writing by representatives of the parties and shall be independently authorized by appropriate statutory authority. This instrument does not give that authority.

2. Modifications within the scope of this instrument shall be made by the issuance of a bilaterally executed modification prior to any changes being performed.

3. This instrument in no way restricts any signatory party from participating in similar activities with other public or private agencies, organizations and individuals.

4. Any signatory party, in writing, may request termination of their participation at any time before the date of expiration.

This instrument is executed as of the last date shown below and will expire on September 30, 2001, at which time it will be subject to review, renewal, or expiration.

12/18/97
Kerry Arnett, President
Nevada County Resource Conservation District

1/6/98
~~Rene Antonson~~, Chairman, Sam Dardick
Nevada County Board of Supervisors

12/19/97
John Skinner, Forest Supervisor
US Forest Service, Tahoe National Forest

12-22-97
Ron Zinke, District Conservationist
USDA Natural Resources Conservation Service

12-18-97

Jim Marchio, Unit Chief
California Department of Forestry and Fire Protection

J. Ray Patton, Park Superintendent
California State Parks

12/15/97

Rodney A. Hill, Air Pollution Control Officer -
Northern Sierra Air Quality Management District

12/16/97

Charlotte Killigrew, Chairperson, Board of Directors
North San Juan Fire Protection District

12/17/97

Bob Erickson, President, Yuba Watershed Institute

12/24/97

Roger Hicks, President, Board of Directors
South Yuba River Citizens League

12/17/97

Harry Stewart, Mayor, City of Nevada City

12/31/97

Deane Swickard, Field Manager
Bureau of Land Management

12/18/97

Terence McAteer, Superintendent of Schools, Nevada County

12/16/97

Mary Anne Kreshka, Chairperson, Friends of Deer Creek

APPENDIX B

Letters of Support

United States Department of Agriculture
Natural Resources Conservation Service
Grass Valley Service Center
113 Presley Way, Suite 1
Grass Valley, CA 95945
(530)272-3417

July 1, 1998

To: CALFED - Watershed Management

Subject: Proposal - Assessment of the South Yuba River Category III Program

The Proposition 204 Steering Committee for Nevada County at their June 24, 1998 meeting gave a unanimous vote to broaden the scope of the Proposition 204 MOU to accommodate the CALFED objectives. Not only did they vote to support the CALFED proposal, but they also voted to support the long-term project goal of developing a coordinated watershed management and implementation plan for the South Yuba River (Phases II - IV), with input and involvement by the MOU group.

The Phase I recreation use/impact and public-private use conflict inventory and data gathering activities outlined under the CALFED proposal are inextricably linked to the water quality monitoring and other physical data gathering activities proposed under our group's grant request to Proposition 204; and without both sets of information, we would not be able to move on to Phase II of the project, which is coordinated planning based on the data collected under the combined Proposition 204 and CALFED grants.

We definitely support this proposal and request your approval.

Ron Zinke

Ron Zinke
District Conservationist and Committee Chair

Attachment

HIGH SIERRA RESOURCE CONSERVATION & DEVELOPMENT AREA
251 AUBURN RAVINE ROAD, SUITE 201, AUBURN, CALIFORNIA 95603 TELEPHONE: (916) 823-6687

June 25, 1998

To: CalFed - Watershed Management

Subj: Proposal - Assessment of the South Yuba River Category III Program

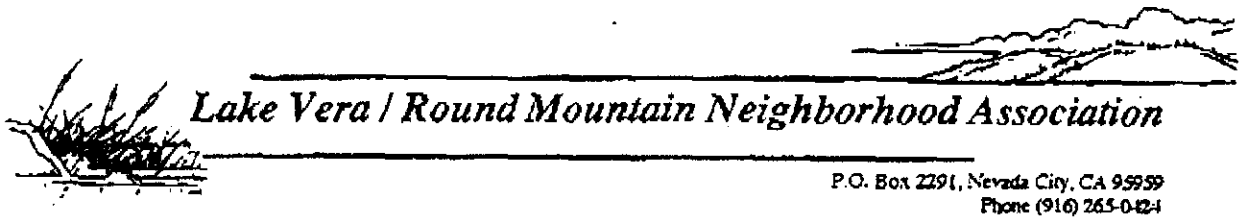
The High Sierra Resource Conservation and Development (RC&D) Council supports this Category III Proposal to conduct a disturbance assessment of the South Yuba River Watershed. Amongst watersheds in the Sierra Nevada, the Yuba River has been one of the most used and abused rivers. The Yuba River Watershed Group (Nevada County) is dedicating its efforts to improve conditions in the watershed, and therefore water quality, which will benefit the Bay Delta.

But, to affect these changes the Group needs a quantified assessment of conditions in the watershed to make effective planning decisions for future actions. This proposal will provide the Group with that information.

We strongly support this proposal and request your approval.

Bob Roan
Project Coordinator

BR:map



Lake Vera / Round Mountain Neighborhood Association

P.O. Box 2291, Nevada City, CA 95959
Phone (916) 265-0424

June 28, 1998

To: Cal Fed Watershed Management

Lake Vera Round Mountain Neighborhood Association representing 475 residents along Lake Vera/Purdon Road and bordered on the north by the southern side of the South Yuba River canyon is enthusiastically supportive of this grant application which would help initiate the organization of a Coordinated Resource Management Plan for the area. Located within the boundaries of the association is the Rock Creek and Lake Vera watershed which empties into the South Yuba at Meyers Ravine. Four Campfire camps and a family camp operated by the City of Piedmont (total of 335 acres) circle the lake; a privately operated youth camp is nearby.

Since 1995, when several members of the association were involved in a study of area biological resources to include in a plan for development of the area (to assist in the revision of the Nevada County General Plan), we have been looking for technical help to assist us in preserving our watershed and habitat. The association is pleased to be included in this project and will be able to furnish volunteers to assist in its implementation. Initially we can donate 100 hours of volunteer time and can expand this as the need is defined.

Sincerely yours,

Nancy Weber

Nancy Weber for the Steering Committee

APPENDIX C

Sierra Nevada Alliance/Regional Council of Rural Counties
Principles of Watershed Restoration
Community Involvement Principles

Attachment 1

PRINCIPLES OF WATERSHED RESTORATION

The principles of watershed restoration are:

a) Restoration must be consistent with watershed level assessment, analysis and evaluation; restoration includes protection of existing healthy conditions,

b) Restoration should assure the preservation of existing healthy conditions by removing known threats and protecting from future threats,

c) Restoration must include eliminating continuing causes of watershed degradation,

d) Restoration should be staged, moving outward and downward generally from the top of the watershed, from core healthy or restored areas; exceptions are limited to work designed to link core healthy areas,

e) Restoration projects should be prioritized within each watershed for effectiveness on the basis of maximum ecological benefit and on the benefits to sustainable local community economics and/or revitalization,

f) Restoration and stewardship decisions should be based on explicit objectives and benchmarks from an approved Watershed Restoration Strategic Plan,

g) Restoration that alters environments should give highest priority to project results that use natural processes,

h) Progress of restoration must be effectively monitored, using explicit objectives and benchmarks, in order to evaluate ongoing restoration and stewardship efforts,

i) Restoration plans and/or projects must not sacrifice one ecosystem for another,

j) Restoration must be accomplished consistent with existing applicable environmental laws.

Source: Sierra Nevada Alliance
and Regional Council of Rural Counties
March 1997

Attachment 2

PRINCIPLES OF WATERSHED COMMUNITY INVOLVEMENT

a) Watershed strategic, annual and project planning must be open, public and involve communities in the watershed,

b) Community involvement must include a comprehensive and inclusive public education component,

c) Watershed restoration and stewardship should reflect a strong component of sustainable local economics and/or revitalization of local communities implementing projects,

d) Advisory and/or oversight committees must include members residing in the watershed,

e) Watershed groups/JPAs administering restoration projects must deposit restoration funds in institutions that actively invest in local communities and economic revitalization within the Council's jurisdiction,

f) Watershed groups must adopt restoration strategies, and plans of action, that enhance and create local job and contracting opportunities,

g) Watershed policy, restoration and stewardship plans and projects must be consistent with principles and standards established by this act.

Source: Sierra Nevada Alliance
and Regional Council of Rural Counties
March 1997

APPENDIX D

US Environmental Protection Agency Index of Watershed Indicators

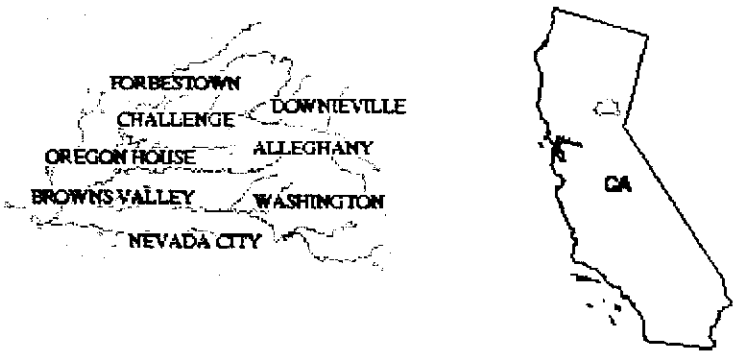
EPA United States Environmental Protection Agency

Provided by EPA & Partners

Index of Watershed Indicators

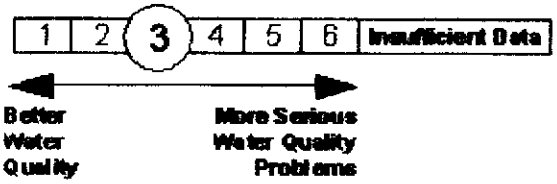
News Flashes:

Upper Yuba USGS Cataloguing Unit: 18020125



Overall Watershed Score (October 1997):

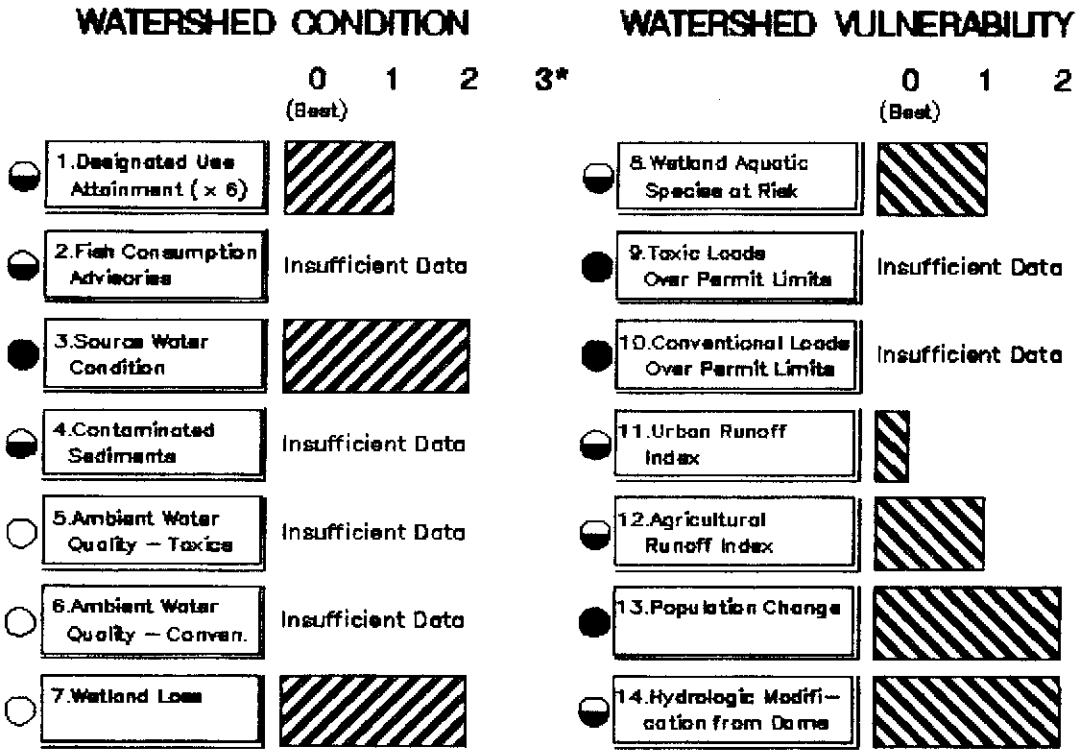
Less Serious Water Quality Problems - Low Vulnerability to stressors such as pollutant loadings



The overall IWI score for this watershed is based on indicators of current condition and future vulnerability displayed below.

The graphic below shows the individual indicators used to score the watershed. The indicators on the left are indicators of the current condition. The indicators on the right show the future vulnerability of the watershed. More information about the indicators and their meaning can be found at the IWI homepage. For more information on a particular indicator for this watershed, select a bar below.

Scores for:



Legend:

These symbols provide an indication of the quality of the NATIONAL data set. For any specific watershed, more or less data of adequate quality may be available.

● Data Consistent. Sufficient Data Collected.

◒ Data Somewhat Consistent. Additional Data Needed.

○ Data Needs to be Much More Consistent. Much Additional Data Needed

* Watershed condition and vulnerability scores range from zero to three. The higher numbers reflect the more serious problems depicted by the data. Category 1 is the most important. It is the only category that can receive a score as high as three, and its score is then further weighted by a factor of six before it is use to compute the Overall Watershed Score shown above.

[illegible] information about Places Involving this Watershed

States: • [illegible]

Counties:
- [illegible]
- Nevada
- Placer
- Plumas
- Sierra
- [illegible]

Metropolitan Areas:
- [illegible]
- Yuba City
- Sacramento

Nominated American Heritage Rivers: None

Other Watersheds:

upstream
- None

downstream
- [illegible]

[illegible]

Revised April 22, 1998

APPENDIX E

Sierra Nevada Ecosystem Project
Final report to Congress, Vol. II, Chapter 34," Biotic Integrity of Watersheds"

PETER B. MOYLE
Department of Wildlife, Fish, and
Conservation Biology
University of California
Davis, California

PAUL J. RANDALL
Department of Wildlife, Fish, and
Conservation Biology
University of California
Davis, California

34

Biotic Integrity of Watersheds

ABSTRACT

The biological health of one hundred Sierra Nevada watersheds was evaluated using an Index of Biotic Integrity (IBI). The IBI scores indicated that the biological communities of seven of the watersheds were in excellent condition, thirty-six were in good condition, forty-eight were in fair condition, and nine were in poor condition. The biggest factors contributing to low IBI scores were large dams and introduced fishes, although factors affecting local stream habitats, especially roads and activities associated with roads, were also important. All watersheds in the Sierra Nevada have experienced at least some loss of biotic integrity through the loss or decline of native organisms, but many have considerable potential for recovery.

INTRODUCTION

The Sierra Nevada can be divided into hundreds of small watersheds, which in turn are subdivisions of larger watersheds. All streams on the west side of the range are ultimately part of the Sacramento–San Joaquin watershed, while on the east side, all streams ultimately flow into the Great Basin, in three discrete drainages (Lahontan, Mono, and Owens). In many respects, watersheds are good units on which to base conservation efforts, especially for aquatic organisms, because they are relatively easy to define and because they can contain a wide variety of habitats and species, depending on the watershed's size. For aquatic organisms, watersheds are often the landscape unit in which evolution of distinct taxa takes place, because of the difficulty many aquatic organisms have in moving from one watershed to another (Moyle 1976a; Moyle et al. 1996). This chapter identifies watersheds in the Sierra Nevada that are still dominated by native aquatic species and communities and that contain a wide variety of habitats, rare habitats, or both. The watersheds with high scores for biotic integrity may be logical places to focus large-scale conservation efforts.

INDEX OF BIOTIC INTEGRITY

The biological health of Sierra Nevada watersheds can be measured using a broad-scale Index of Biotic Integrity (IBI). Indices of biotic integrity are measures of the health of streams and have been developed as an alternative to physical and chemical measures of water quality (Karr 1981; Karr et al. 1986; Regier 1993). The early work on IBIs was largely funded by the U.S. Environmental Protection Agency (EPA) with the purpose of developing a rapid-assessment tool to help the EPA carry out the mandates of the Clean Water Act. The basic idea is to combine a number of measures of the structure and function of fish communities into an index, on the assumption that the responses of an integrated community of fishes to changes in the environment would reflect both major environmental insults (e.g., a pesticide spill) and more subtle long-term effects, such as chronic non-point-source pollution and changes in land use.

Biotic integrity is defined as "the ability to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitat of the region" (Karr and Dudley 1981). An IBI is a method of measuring this complex idea, and IBIs can be developed independently for different regions or streams. IBIs are now widely used in the eastern United States, where fish communities are complex and largely made up of native species (Miller et al. 1988). For eastern streams it is possible to develop an IBI that uses ten to twelve different measures (metrics) in the creation of the final index (Karr et al. 1986).

In California, the small number of native fishes in most

Sierra Nevada Ecosystem Project: Final report to Congress, vol. II, *Assessments and scientific basis for management options*. Davis: University of California, Centers for Water and Wildland Resources, 1996.

streams makes development of complex IBIs with numerous metrics (independent measures of the nature of the fish assemblage) difficult (Miller et al. 1986). In fact, two measures, number of native fish species and abundance of native fishes, provided much of the information needed to determine biotic integrity as defined previously (Moyle et al. 1986). In Sierra Nevada streams, if the fish communities are intact, the stream is likely to have a fairly natural hydrograph and the watershed is likely to be in reasonably good condition (Baltz and Moyle 1993). Native fishes, however, are only part of the biotic integrity picture, especially in relation to water quality, so we developed an IBI for Sierra Nevada watersheds that takes into account not only native fish assemblages but also the abundance of native frogs, the presence of anadromous fish, and the effects of the widespread introductions of trout into high-elevation streams. Ideally, this IBI should also include metrics based on invertebrates, but our knowledge of their distribution and abundance is too poor at this time to use them. It is worth noting that the IBI that we present here is designed to cover bigger watersheds than those for which most IBIs are designed. IBIs tend to be designed to evaluate specific types of streams or stream habitats. We are currently developing such specific IBIs for Sierra Nevada streams.

METHODS

The first problem to be resolved for this analysis was which watershed scale to use. The Calwater numbering system for watersheds, for example, breaks each major drainage basin (e.g., the Central Valley) into major tributary systems, labeled Hydrologic Units (HUs). Each HU is divided into Hydrologic Areas (HAs), which are divided into Hydrologic Subareas (HSAs), which in turn are divided successively into Super-Planning Watersheds and Planning Watersheds. There are thousands of watersheds in the latter two categories, so using them as the unit of analysis would both be difficult and have a high degree of redundancy. We chose as the basic unit of analysis, therefore, the HSA, using HAs or even HUs if the watersheds were too small to subdivide further. This choice resulted in one hundred watersheds being used in the evaluation, covering the entire mountain range (figure 34.1). The watersheds range in area from 4,816 ha (11,895 acres) (a partial drainage on the California-Nevada border) to 382,669 ha (945,192 acres) (the Upper Owens drainage). However, most (62%) of the analysis watersheds are between 15,000 and 90,000 ha (37,050 and 222,300 acres) in area; 28% are larger than 90,000 ha and 10% are smaller than 15,000 ha. Typical watersheds within these categories were the forks of large rivers (e.g., the South Yuba River) or independent drainages of modest size (e.g., Deer Creeks in Tehama, Placer, and Tulare Counties). An additional thirty-four watersheds were not evaluated because of inadequate information on their aquatic biota. These watersheds are all at low elevations, most are small in size, and most seem to lack permanent water (figure 34.2). Nine of these watersheds mark the southern end of the SNEP area, twenty-two are in the foothills along the western edge of the boundary, and three are along the California-Nevada border.

The IBI developed for this analysis includes six metrics (table 34.1), each rated on a scale of 1 to 5, where 1 is low (poor) and 5 is high (good). The six metrics were added and standardized to a 100-point scale, because not all metrics could be used in all drainages. The following is an explanation of each metric.

Native ranid frogs: The foothill yellow-legged frog, mountain yellow-legged frog, and Cascade frog appear to be the amphibians most sensitive to environmental change. Their disappearance from much of their native habitat in the Sierra Nevada is a cause for concern, and their presence in a watershed is an indication that high-quality aquatic and riparian habitats still exist. We scored watersheds for this metric using information presented in Jennings 1996, Jennings and Hayes 1994, personal communications with M. R. Jennings, and observations by Moyle and his graduate students.

Native fishes: The native fishes of the Sierra Nevada are highly adapted to the natural flow regimes, and they tend to become depleted if the regimes are changed, especially by dams. Scores for this metric are based on field notes, University of California, Davis, stream surveys (Moyle et al. 1996), and studies such as Moyle and Nichols 1974 and Brown and Moyle 1993. Another important source of information was the data sheets of the Wild Trout Program of the California Department of Fish and Game. In many instances, agency biologists familiar with the watershed were consulted as well.

Native fish assemblages: One of the best indications of high-quality aquatic environments is the presence not only of native species but also of groups of species co-occurring in their natural assemblages of three to six species. Some of the native fishes can persist indefinitely in altered habitats and in the presence of exotic fishes, while others cannot. We scored this metric largely from information from the same sources as were used for the previous metric.

Anadromous fishes: Salmon, steelhead, and lamprey were important parts of the aquatic ecosystems at low to middle elevations in west-side Sierra Nevada streams, from the Kings River (Fresno County) north. Their exclusion by dams from much of their former habitat has significantly altered the stream communities of which they were once part. We scored this metric based on estimates of past and present distribution and abundance as presented in Yoshiyama et al. 1996.

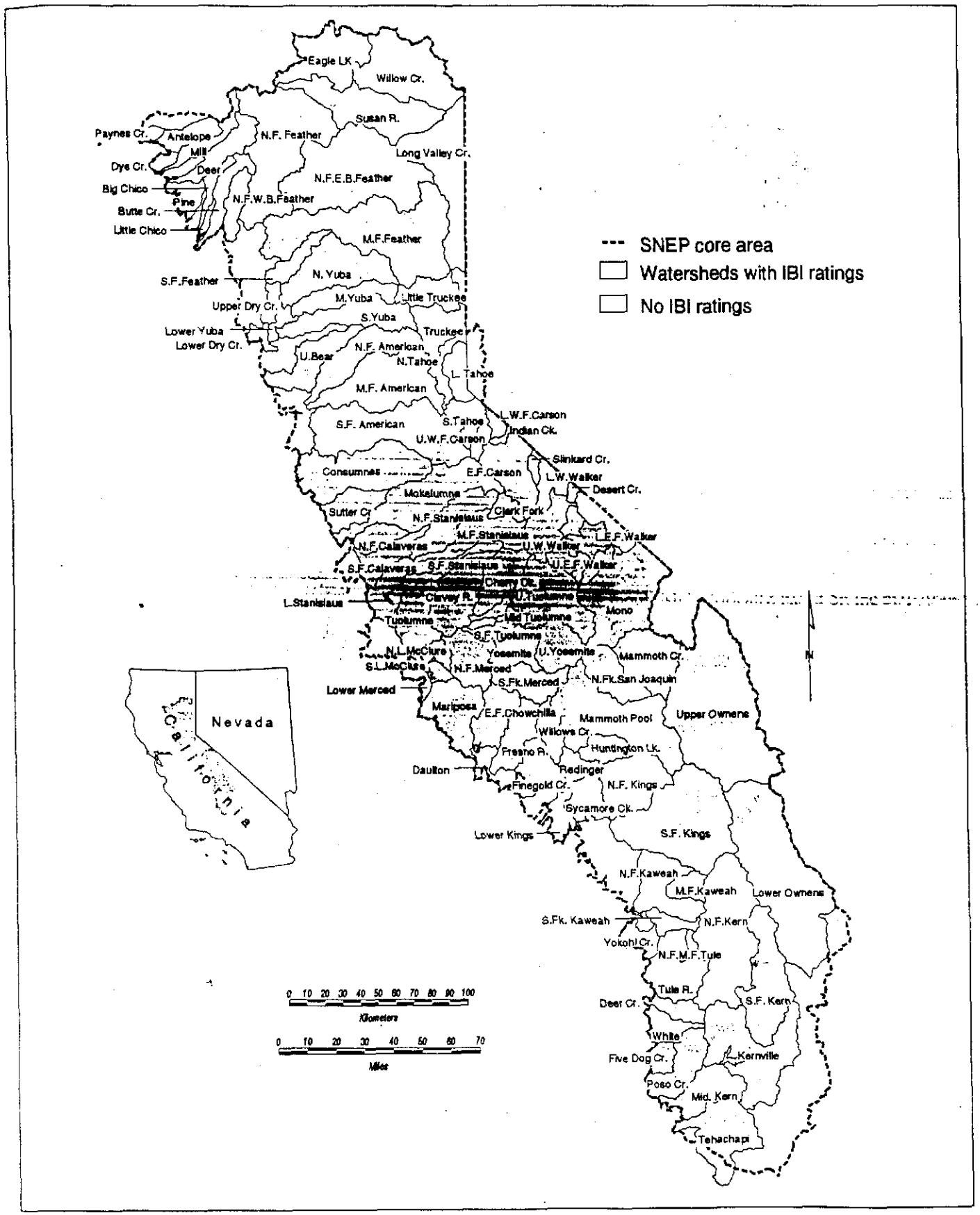


FIGURE 34.1

Watersheds selected for IBI analysis in the SNEP core area.

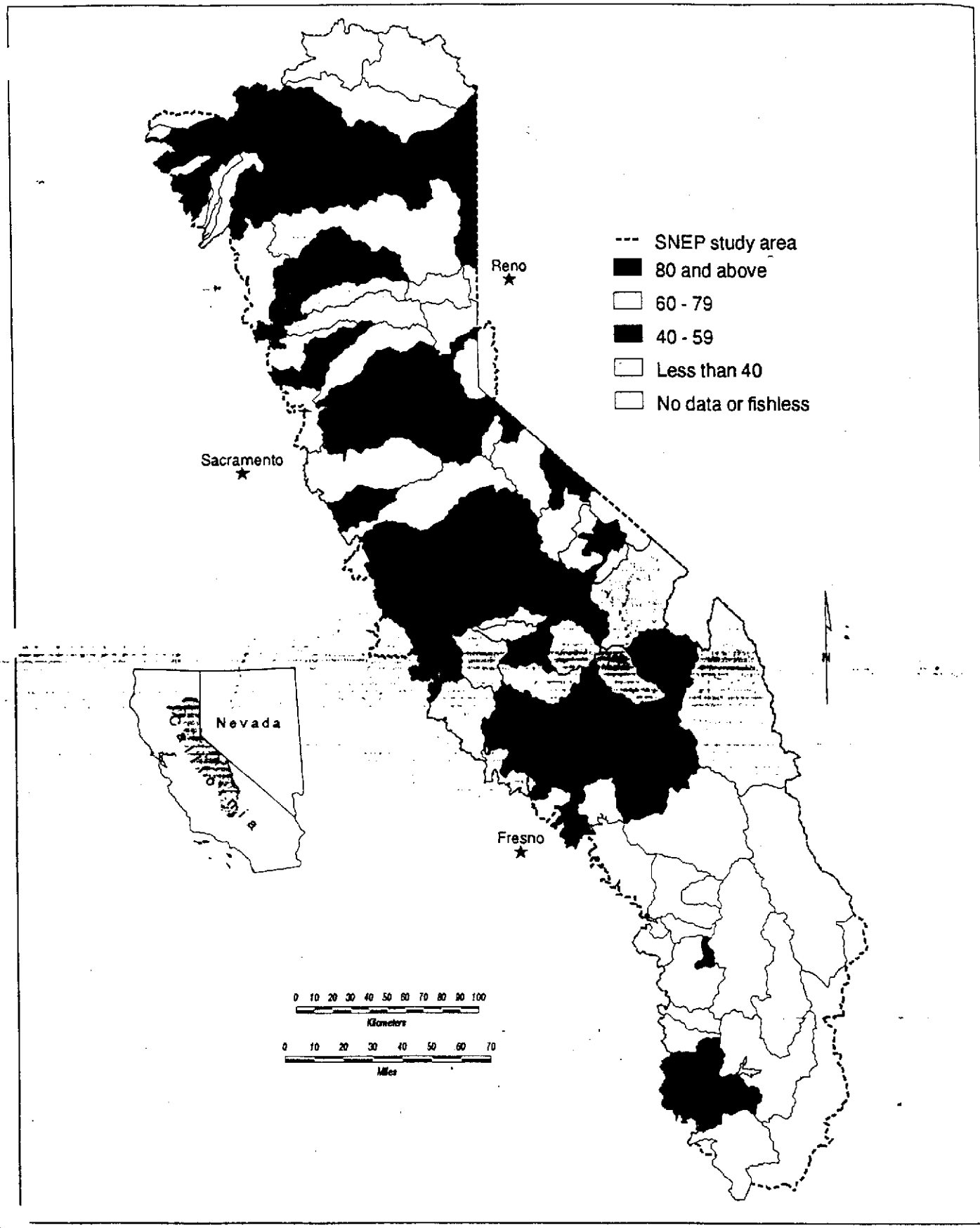


FIGURE 34.2

IBI ratings for Sierra Nevada watersheds.

TABLE 34.1

Metrics and scoring system for an Index of Biotic Integrity for Sierra Nevada watersheds.

Aquatic Community	Metrics
I. Native ranid frogs	1. Absent or rare 3. Present 5. Abundant and widely distributed
II. Native fishes	1. Absent or rare *or* introduced where not native 3. Present in much of native range 5. Abundant in most of native range
III. Native fish assemblages (excluding trout-only assemblage)	1. Largely disrupted 3. Present but scattered or containing exotic species 5. Largely intact
IV. Anadromous fishes (if historically present)	1. Absent or rare 3. Present mainly below dams or uncommon 5. Found in original range
V. Trout	1. Range greatly expanded, mixture of non-native and native species *or* range greatly reduced 3. Range expanded but includes native species *or* range about the same but native populations reduced, exotics present 5. Mostly native species in original range
VI. Stream fish abundance	1. Substantially lower than presumed historic levels *or* widespread and abundant in originally fishless areas 3. Somewhat lower overall than historic levels *or* present in fishless areas 5. About the same as or higher than historic levels

IBI score = (Total points possible/number of metrics) x 20
80–100 Aquatic communities in very good to excellent condition
60–79 Aquatic communities in good condition
40–59 Aquatic communities in fair condition
<40 Aquatic communities in poor condition

Trout: Rainbow and cutthroat trout were native to the Sierra Nevada, generally at elevations below 1,600 m (5,250 ft). However, a large region at high elevations was fishless until trout were introduced there by Euro-Americans. In addition, many of the trout introduced were not native to California. Because trout are now the dominant predators in the streams and lakes in which they were introduced, it is assumed that their introduction has had a significant negative effect on aquatic biodiversity. We scored this metric based on information sources similar to those used for the native fish metrics and on Knapp 1996.

Stream fish abundance: Often water projects and watershed alterations not only change the species composition of streams but also reduce the total biomass and abundance of fish, including non-native species. This metric is based on the same sources of information as the native fish metric.

Other analyses: To look for factors associated with high or low IBI scores, we determined the following variables for each watershed, based on a geographic information system (GIS) analysis of square landscape units (pixels) 1 ha (10,000 m^2 [2.47 acres]) in area:

- Dams: percentage of total hectares in each watershed that contain a dam of any size.
- Reservoirs: total capacity of reservoirs in the watershed, in acre-feet.
- Diversions: percentage of total hectares in each watershed containing a water diversion of any size. This figure is based on water rights filings and thus includes many small diversions and diversions that may not be active.
- Roads: percentage of hectares containing at least one road.
- Roads and streams: percentage of hectares containing both a road and a stream.
- Roadless area: percentage of watershed in areas that contain no roads and that are also at least 1,000 ha (2,470 acres) in area and are 0.2 km (0.125 mi) from a road.
- Fishless area: percentage of watershed that was presumably without fish historically, based on the map drawn for this chapter.
- Mean elevation: average elevation of hectares within the watershed.

The complete data set developed is presented in appendix 34.1. Once the data had been gathered, they were analyzed using principal components analysis. The purpose of the analysis was to determine the degree to which each of the eight variables, or a combination of them, seemed to influence IBI scores.

RESULTS

The IBI scores indicated that seven of the one hundred watersheds had aquatic communities in excellent condition (IBI values of 80–100) (figure 34.2; appendix 34.1). Another thirty-six had aquatic communities in good condition (IBI values of 60–79), while forty-eight had aquatic communities in fair condition (IBI values of 40–59) and nine had aquatic communities in poor condition (IBI values less than 40). Of the seven watersheds with the highest scores, three stand out with scores greater than 90: Deer Creek and Mill Creek (Tehama County) and the Clavey River (appendix 34.1). These watersheds contain intact native fish and amphibian faunas, and the biotic communities are still largely governed by natural processes.

Deer and Mill Creeks are highly unusual in that they both support runs of spring-run chinook salmon. There are three clusters of watersheds with high IBI scores: (1) the Deer–Mill–Antelope Creek and associated small watersheds in Tehama County, (2) the North Fork Calaveras and Clavey Rivers in the western central Sierra Nevada, and (3) the upper Kings and Kern River watersheds in the southern part of the range. Streams in the Tehama cluster flow through rugged volcanic terrain with low accessibility until recently; the streams were also too small to make large dams viable, generally. The western central cluster consists of medium-sized tributaries to larger, highly developed rivers that have managed to maintain much of their native fish fauna. The upper Kings and Kern watersheds are high-elevation watersheds with steep terrain and low accessibility. Most of their area is in either national parks or wilderness areas. Despite their high IBI scores, all of these watersheds have been altered by human activity, but less so than other watersheds in the Sierra Nevada, as indicated by their moderate scores for variables related to diversions and roads (table 34.2). None, however, contain large dams, so the natural hydrologic regimes are still intact.

Watersheds that received low scores are (1) low- to middle-elevation drainages that have been dammed and diverted and so tend to be dominated by introduced fishes and frogs and/or to have greatly diminished native fish and amphibian populations; (2) high-elevation watersheds that have lost most of their frogs and that are dominated by non-native trout; or (3) small, low-elevation watersheds that have been highly altered by human activity (urbanization, agriculture, mining, etc.), as indicated by high scores for variables related to dams, diversions, and roads (appendix 34.1).

Correlation analysis indicated that the IBI score was negatively correlated ($p < 0.05$) with the percentage of hectares containing dams (–0.22), reservoir capacity (–0.27), the percentage of hectares containing roads associated with streams (–0.22), and the percentage of the watershed that was historically fishless. This is not surprising, given that a low IBI score at high elevations would be strongly influenced by the presence of trout in naturally fishless areas, while a low score at low elevations would be related to the presence of major dams or road systems. This dichotomy is reflected in the results of the principal components analysis, which produced two factors with eigenvalues greater than 1.00 (table 34.2). Factor 1, explaining 42% of the variance, had only a moderate negative loading on the IBI score but was strongly positively loaded on the two road variables and strongly negatively loaded on mean elevation and the percentage of the watershed that was historically fishless. In factor 2, explaining 17% of the variance, the IBI score had a high negative loading while the percentage of hectares containing dams, reservoir capacity, and the percentage of the watershed that was historically fishless had high positive loadings.

TABLE 34.2

Factors created by the principal components analysis of variables related to the biotic integrity of Sierra Nevada watersheds.

Variable	Factor 1	Factor 2
Index of Biotic Integrity	–0.2242	–0.6065
Percentage of hectares containing dams	0.4245	0.5541
Reservoir capacity	0.2841	0.5414
Percentage of hectares containing diversions	0.5876	–0.2625
Percentage of hectares containing one or more roads	0.8606	0.1116
Percentage of hectares containing a road and a stream	0.8598	0.1644
Percentage of watershed that is roadless	–0.8997	0.0293
Percentage of watershed that is historically fishless	–0.5394	0.5541
Mean elevation	–0.7340	0.3865
Eigenvalue	3.7754	1.5434
Percentage of variance	42%	17%

DISCUSSION

The analysis of the IBI rating indicates that major dams at low to middle elevations and the introduction of fish at high elevations have had the greatest negative effects on lowering biotic integrity. These two factors are so dominant that they tend to obscure the effects of watershed degradation, as reflected in the variables related to the abundance of roads. For example, the historically fishless areas are also mostly wilderness areas and national parks today, and so have low numbers of roads, yet the presence of introduced fish greatly reduces the biotic integrity of the waters within these areas. In general, the watersheds with the highest IBI scores are at intermediate elevations, are without major dams, and have low to intermediate scores for variables related to human disturbance (roads, diversions).

The importance of dams and introduced species in reducing biotic integrity does not mean that other factors are not important, especially for smaller watersheds or for individual situations. Streams that are subject to high levels of sedimentation from numerous or poorly constructed roads, from mining, or from logging on steep hillsides will have reduced diversity of aquatic organisms, as will streams that have had their channels heavily modified for flood control or other purposes (e.g., Moyle 1976b). Streams heavily polluted by acidic water leaching out of an abandoned mine can have a very low diversity of organisms. Most of these factors, however, are likely to be more localized in their effects and reversible, often just by a cessation of the problem-causing activity. The native fish populations in particular have a high capacity to bounce back from being decimated (Moyle et al. 1983). For example, many small tributaries to the South Yuba River were devastated by hydraulic mining in the nineteenth century yet today show a high degree of recovery of their

tive fish and amphibian faunas (Gard 1994; P. Randall, unublished data). Species of fish that are missing from the lol fauna appear to have been unable to reinvade because a mbination of dams and introduced predators has made the ovement of native fish in the main river difficult or impossible (Gard 1994). Reintroduction of the missing native fishes nto some streams is now being considered (W. Frizzel, State arks and Recreation, conversation with the authors, 1995). Although the results of this analysis fit with other, even more subjective indicators of watershed health, they should nevertheless be treated with caution for a number of reasons.

- The information available to create an IBI score was limited for some watersheds, and the scoring was done by just one person, although many people, field notes, and references were consulted during the scoring process.
- The IBI scores essentially compare the present fish and amphibian assemblages to the presumed pre-Euro-American assemblages; the systems most resembling the original systems obtained the highest IBI values. All aquatic ecosystems in the Sierra Nevada have been altered to one degree or another, so even the highest-rated watersheds are far from pristine. Thus, a different value system, one that was more accepting of the changes, would result in different scores. For example, if it was assumed that the streams at high elevations should be rated positively on the basis of their ability to support large, fishable populations of wild trout, a number of high-elevation watersheds would receive higher IBI scores than they did under the scoring system used here. From the point of view of biotic integrity as defined in the introduction to this chapter, originally fishless streams and lakes that are now dominated by introduced trout must be considered as highly altered ecosystems. The presence of fish eliminates most of the large invertebrates and amphibians that once dominated these waters.
- A major factor lowering many of the scores was the scarcity or absence of native frogs from the watershed. The causes of frog declines (e.g., introduced diseases) are controversial and may have had little effect on the rest of the native biota. Nevertheless, frogs *were* once important parts of all aquatic ecosystems of the Sierra Nevada, and their absence lowers biotic integrity.
- The IBI does not consider aquatic invertebrates that may have disappeared from some areas where native fish and amphibians still exist. Invertebrates are likely to be particularly sensitive to land-use practices (road building, enclosure of springs, logging, grazing, etc.) that can cause extinctions of highly specialized endemic species that live in limited habitats (Erman 1996).
- Many of the one hundred watersheds analyzed here are very large in area and may have smaller watersheds within them that would score significantly higher or lower if treated individually. For example, the North Fork of the Kings River received a mediocre IBI score (52) because it has been dammed for hydroelectric production, has been highly roaded from logging and recreational use, and has had its high-elevation waters filled with non-native trout. Within this drainage, however, is Rancheria Creek, a relatively inaccessible watershed that is one of the most undisturbed in the Sierra Nevada (E. Beckwitt, conversation with the author, 1995). At the opposite extreme is the Clavey River watershed (IBI score = 92), which has a number of small diversions in the upper watershed, has been heavily grazed and logged in places, and is only 26% in roadless areas. The stream nonetheless retains an abundant native fish fauna, with no exotic species, especially in the rugged lower canyon (S. Matern and M. Marchetti, unpublished field notes, 1993). Access to much of the Clavey River itself is limited because its north-south orientation means that few roads cross it, but none run parallel to it for a long distance (unlike most other major Sierra Nevada streams).

CONCLUSIONS

All aquatic ecosystems in the Sierra Nevada have lost biotic integrity to a greater or lesser degree. More than half (58%) of the watersheds, however, have been rated as having their native aquatic biota in poor to fair condition. Many of the processes that have contributed to the loss of biotic integrity have slowed down (e.g., the planting of trout, dam construction), and a number of waters are receiving special protection in national parks, as wild and scenic rivers, or through other actions (e.g., coordinated resource-management programs). There are still a few watersheds that are in remarkably good condition and many others that retain a good share of their original aquatic biota. However, there is no evidence that the overall trend in loss of biotic integrity that the waters of the Sierra Nevada have experienced over the past 150 years has been reversed, although it may have slowed down somewhat. There is every reason to suspect that the loss is continuing as new environmental problems related to human population growth are substituted for the old problems related to heavy exploitation of the landscape and as exploitation (e.g., grazing) continues, even if at reduced levels compared to those of twenty-five or fifty years ago.

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APPENDIX 34.1

Variables Used in Analyzing Factors Affecting the Biotic Integrity of Watersheds (Arranged from Lowest IBI to Highest)

Name	Cal Water No.	Area (ha)	Mean Elevation	IBI	% Dams	Reservoirs (acre-ft)	% Diversions	% Roads	% Roads and Streams	% Roadless	% Fishless
Yokohl Cr.	553.50	27372	469.3	25	0.00	0	0.95	6.95	3.14	43.7	0.0
S. Yuba	517.30	92737	1492.4	30	3.13	227882	1.88	15.30	6.50	39.8	63.9
Daulton	539.20	28633	244.0	30	1.05	240182	1.64	8.75	5.48	42.3	0.0
Tehachapi	556.10	114518	1230.7	32	0.09	764	0.40	12.33	10.31	52.1	0.0
M. Yuba	517.40	54625	1416.2	33	0.92	54534	1.59	17.83	6.04	28.3	46.0
N.Fk.San Joaquin	540.60	65231	2766.9	36	0.00	0	0.08	0.57	0.21	96.9	100.0
Mono	601.00	174723	2428.4	36	0.57	87670	0.67	4.57	2.08	67.5	86.1
Upper Owens	603.20	382669	2121.7	38	0.21	42842	0.61	5.33	3.43	76.0	30.1
Lower Owens	603.30	331606	1761.3	36	0.03	46600	0.34	5.71	3.28	76.1	29.3
S.Fk. American	514.30	207832	1372.9	40	1.40	328037	2.58	19.90	9.76	28.9	38.9
N.Fk. Feather	518.40	238915	1598.7	40	0.59	1506087	0.80	14.36	5.73	33.4	0.0
L. Stanislaus	534.22	65305	560.4	40	1.69	2401459	1.06	15.53	10.12	21.1	0.0
Huntington Lk.	540.50	34647	2388.3	40	1.16	91016	1.41	11.96	5.31	52.1	82.4
Five Dog Cr.	555.40	22557	625.1	40	0.00	0	2.35	12.64	7.67	11.9	0.0
Mammoth Cr.	603.10	98451	2496.3	40	0.20	183570	0.94	13.59	6.10	46.7	47.4
Long Valley Cr.	637.10	154134	1473.1	40	0.07	140	0.58	11.29	3.32	40.1	0.0
N.Fk.E.Br.Feather	518.50	265413	1631.1	43	0.23	30396	0.76	14.27	8.22	31.9	0.0
N.Fk.Stanislaus	534.50	71098	1850.7	43	1.41	200833	0.66	16.66	8.93	41.0	76.3
Lower Merced	537.10	17016	214.9	43	0.59	9730	1.00	12.06	5.76	33.0	0.0
Redinger	540.30	26008	1375.2	43	1.15	171276	2.34	17.76	6.00	13.0	7.4
Mammoth Pool	540.40	209525	2502.2	43	0.38	313286	0.29	5.11	2.12	79.5	82.1
Clark Fork	534.60	17684	2487.0	44	0.00	0	0.17	1.64	1.36	95.4	100.0
Mid. Kern	554.10	71187	1249.1	44	0.14	15	2.66	9.83	5.48	67.1	0.0
M.Fk. American	514.40	159523	1498.3	47	0.82	448335	1.23	15.67	5.02	45.2	69.2
U. Bear	516.30	73125	705.3	47	1.23	77885	1.61	30.03	17.15	3.1	17.2
Lower Dry Cr.	517.12	13256	222.9	47	0.76	57000	1.74	16.16	15.47	12.1	0.0
Upper Dry Cr.	517.13	18643	659.2	47	2.68	1994	1.88	18.42	10.30	15.5	0.0
Lower Yuba	517.14	14374	510.0	47	2.09	1041505	1.74	16.76	11.14	21.1	0.0
Willow Cr.-SJ	540.20	33734	1500.3	47	0.89	45598	1.22	17.95	5.63	36.9	50.3
Sutter Cr.	532.40	54874	522.9	48	1.46	24517	2.75	15.70	14.25	16.0	0.0
U. Tuolumne	536.60	127114	2612.1	48	0.16	360115	0.02	0.82	0.36	96.1	95.6
N. Lk. McClure	537.21	19628	585.2	48	0.51	520	1.32	13.43	8.10	24.2	8.9
S. Lk. McClure	537.21	10640	585.2	48	0.00	0	0.66	8.56	3.47	62.4	0.0
Fresno R.	539.30	61064	777.7	48	0.49	966	2.52	17.58	5.09	23.6	9.0
Finegold Cr.	540.10	55058	588.8	48	0.55	524769	1.74	15.25	7.19	29.0	0.6
S.Fk. Feather	518.20	32813	1233.8	50	2.13	169012	0.61	22.27	7.50	18.1	51.6
N.Fk.W.Br.Feather	518.60	36769	1230.5	50	0.82	14927	2.80	14.86	7.04	29.6	0.0
Yosemite	537.50	49320	1935.2	52	0.00	0	0.26	6.32	3.93	76.9	45.6
N. Fk. Kings	552.33	100089	2376.6	52	0.40	242913	0.42	7.18	2.08	72.1	89.1
Poso Cr.	555.50	68691	1037.4	52	0.00	0	2.43	10.89	5.29	44.7	0.0
L.E.Fk. Walker	630.30	36162	2317.9	52	0.00	0	1.66	5.12	3.82	78.1	12.7
Slinkard Cr.	631.20	7836	2056.1	52	0.00	0	2.93	5.00	1.78	80.9	0.0
Desert Cr.	631.30	5762	2855.7	52	1.74	640	0.52	1.84	0.70	93.4	0.0
L.W.Fk. Carson	633.10	11638	2031.2	52	0.00	0	0.95	7.98	4.39	65.5	0.0
N. Tahoe	634.20	26642	2193.2	52	0.75	732070	2.48	21.27	7.70	41.6	33.9
N. Yuba	517.50	125798	1492.2	53	0.72	2568	1.50	17.97	6.64	35.7	53.0
S.Fk.Calaveras	533.30	46275	655.3	53	1.08	1715	1.73	16.33	11.65	32.2	14.6
S.Fk.Stanislaus	534.30	27733	1700.2	53	1.08	24660	0.76	15.33	9.96	42.1	69.7
M.Fk.Stanislaus	534.40	73638	2068.1	53	0.82	150334	0.49	10.55	5.39	61.0	86.8
Lower Kings	552.20	31276	398.6	53	0.32	900	0.83	10.34	6.71	54.2	0.0
L. Tuolumne	536.30	72867	576.5	56	1.37	17633	1.34	15.50	9.06	24.4	0.9
Cherry Ck.	536.50	60670	2181.8	56	1.81	305358	0.23	2.91	1.15	87.2	94.9
N.Fk.M.Fk.Tule	555.11	10463	1986.4	56	0.00	0	0.57	5.93	1.34	83.4	60.0
L.W. Walker	631.10	32886	2074.2	56	0.00	0	0.94	5.38	3.74	71.8	2.2
Indian Ck.	632.20	4816	1834.4	56	4.14	6860	0.00	6.73	5.59	59.3	0.0
S. Tahoe	634.10	34166	2303.7	56	0.88	2384	2.43	16.44	6.35	60.3	13.9
E.Fk. Chowchilla	539.11	60118	662.8	58	0.17	130	3.43	10.77	3.99	47.2	0.0
Big Chico Cr.	509.14	18689	943.6	60	0.00	0	1.87	13.63	5.67	36.7	0.0
Paynes Cr.	509.65	7707	373.8	60	0.00	0	0.00	8.43	2.33	59.5	0.0
Cosumnes	532.20	163766	824.4	60	0.98	46556	2.20	21.20	12.05	11.0	9.7

Name	Cal Water No.	Area (ha)	Mean Elevation	IBI	% Dams	Reservoirs (acre-ft)	% Diversions	% Roads	% Roads and Streams	% Roadless	% Fishless
Little Truckee	536.00	49215	2033.2	60	0.41	245000	0.67	15.62	7.30	23.8	10.4
Mid.Tuolumne	536.70	18750	1879.7	60	0.00	0	0.64	11.02	3.47	61.3	90.9
M. Fk. Kaweah	553.43	26633	2274.7	60	0.00	0	0.04	0.65	0.30	97.4	99.3
Tule R.	555.12	90865	1119.0	60	0.11	325	1.69	10.09	4.88	57.0	27.5
L. Tahoe	634.30	34792	1949.0	60	0.29	6800	1.78	0.09	0.17	0.0	0.0
Susan R.	637.20	147323	1525.8	60	0.75	35129	0.38	12.43	5.35	30.5	0.0
M.Fk. Feather	518.30	291916	1652.7	63	0.27	140996	0.53	13.98	6.64	39.3	12.3
S.Fk.Merced	537.40	62332	1859.2	63	0.00	0	0.45	6.75	2.39	71.4	44.9
Upper Mokelumne	532.60	150067	1611.4	64	0.93	227077	0.89	15.43	8.61	42.8	64.4
U. Yosemite	537.60	59320	2697.1	64	0.00	0	0.00	0.77	0.40	96.5	92.7
Mariposa	538.00	91822	390.9	64	0.65	26955	1.44	9.85	5.03	40.8	0.0
N. Fk. Kaweah	553.41	87928	1683.5	64	0.34	943	1.21	6.20	2.09	78.9	70.7
U.E.Fk. Walker	630.40	40652	2659.5	64	0.49	3500	1.11	2.27	2.02	92.1	23.4
U.E.Fk. Walker	630.40	15867	2659.5	64	0.00	0	2.14	5.39	2.77	78.4	46.2
Upper W.Walker	631.40	58923	2637.9	64	0.34	1385	0.51	4.32	3.22	83.0	47.0
E.Fk. Carson	632.10	84528	2351.4	64	0.95	7058	0.52	2.77	2.83	89.5	26.7
U.W.Fk. Carson	633.20	16448	2457.4	64	3.04	2630	0.49	8.16	4.98	71.3	8.2
Truckee	635.20	56456	2031.4	64	1.06	102570	0.97	20.36	9.69	31.4	15.2
Little Chico	521.20	7191	496.0	67	1.39	26	1.39	10.33	1.39	21.3	0.0
Butte Cr.	521.30	39986	1090.8	67	0.75	14680	2.33	16.81	7.00	30.6	0.0
N.Fk.Merced	537.30	65098	908.0	67	0.31	315	1.08	14.69	8.69	36.8	32.8
Sycamore Ck.	552.31	43047	922.9	68	0.00	0	1.77	11.35	5.71	53.9	10.2
Deer Cr.-SJ	555.20	29676	995.7	68	0.00	0	3.27	8.24	3.84	66.0	0.0
White R.	555.30	34026	643.3	68	0.00	0	0.71	13.02	5.38	28.7	0.0
Willow Cr.	637.40	163216	1589.4	68	0.43	10863	1.01	5.67	2.17	75.3	0.0
S.Fk.Tuolumne	536.80	23338	1658.9	72	0.00	0	0.39	14.59	3.51	48.0	94.6
S. Fk. Kaweah	553.42	22411	1520.1	72	0.00	0	1.65	4.06	1.52	83.3	45.7
S. Fk. Kern	554.23	137361	2347.5	72	0.00	0	0.81	3.11	1.30	88.5	2.2
Eagle Lk	637.30	111352	1788.9	72	0.00	0	0.48	14.87	2.38	16.4	0.0
N.Fk. American	514.50	89989	1302.6	73	1.44	33067	0.93	17.04	7.66	47.8	42.1
S. Fk. Kings	552.34	247075	2601.5	76	0.08	2780	0.14	2.84	1.03	88.8	74.9
Kernville	554.22	177969	1570.6	76	0.00	0	1.45	9.21	5.25	89.5	0.0
N. Fk. Kern	554.24	217331	2625.7	76	0.00	0	0.15	3.10	0.82	87.7	35.4
Pine Cr.	509.16	28057	491.7	80	0.00	0	0.57	3.21	1.60	78.0	0.0
Dye Cr	509.62	10529	364.5	80	0.00	0	0.10	12.20	1.43	31.5	0.0
Antelope Cr.	509.63	37439	950.5	80	0.27	70	1.44	11.85	4.65	51.4	0.0
N.Fk.Calaveras	533.20	31729	637.8	80	0.95	918	1.95	12.37	9.27	49.8	4.0
Clavey R.	536.40	92978	1408.9	92	0.43	8180	0.85	20.32	8.87	26.2	60.9
Deer Cr.	509.20	53975	1273.0	93	0.00	0	0.65	14.72	4.48	46.2	0.0
Mill Cr.	509.42	33863	1204.1	93	0.00	0	0.36	7.89	1.77	71.4	0.0

APPENDIX F

Selected pages from CALFED Bay-Delta Program, Volume II: Ecosystem Restoration Program Plan

this ecological zone because of the extensive water development and inadequate natural summer and fall base flows. In some years, these streams provide habitat for fall-run chinook salmon, steelhead, and resident native fish populations. The overall ecological health of the Bear River and Honcut Creek Ecological Units, however, is poor.

Sutter Basin Ecological Unit

The Sutter Bypass section of the Sutter Basin provides important waterfowl habitat and serves as a migratory route for salmon and steelhead in the upper Sacramento River and its tributaries, particularly Butte Creek. Salmon and steelhead migrating to Butte Creek use Butte Slough, which originates at the Butte Slough Outfall Gates and ends at the north end of the Sutter Bypass. The reach within the Sutter Bypass is generally referred to as the East and West Barrows and the connection with the Sacramento River is the Sacramento Slough. In wet years, when Sacramento River overflows into the bypass, both upstream-migrating adults and downstream-migrating juvenile salmon and steelhead use Butte Slough, the East and West Barrows, and Sacramento Slough. Native resident fish, including splittail, also use the bypass as spawning and rearing habitat. In wet years, some salmon, steelhead, and native resident fish may become trapped in isolated pockets and die when floodwaters recede from the bypass and respective overflow weirs (Tisdale, Colusa, and Moulton).

Sutter Bypass is also an important area for waterfowl and wildlife. The bypass has remnant riparian woodlands and wetlands and is part of the Sutter National Wildlife Refuge. Sutter Refuge is the only publicly owned waterfowl habitat in the Sutter basin. It consists of 2,590 acres of seasonally and permanently flood marsh and scattered uplands. Private duck clubs provide an 1,500 acres of habitat of which about 500 acres are natural wetland. Most of the private duck clubs and nearly all of the natural wetlands in this area are located in the Sutter Bypass (Central Valley Habitat Joint Venture 1990). The northern end of the bypass is connected to the extensive marshlands of Butte Sink. Large areas of the bypass are used to grow irrigated crops, such as rice.

Vision For The Ecological Zone

The vision for the Feather River/Sutter Basin Ecological Zone includes restoring important fishery, wildlife, and plant communities by restoring ecological processes and habitats and reducing stressors. Attaining this vision requires restoring or reactivating important ecological processes that create and maintain fish, wildlife, and plant community habitats throughout the ecological zone.

The vision for this ecological zone focuses on maintaining or restoring floodplain and flood processes, streamflow; gravel recruitment, transport, and cleansing; and seasonally flooded aquatic habitats that provide important wintering areas for waterfowl and shorebird guilds. Actions to reduce stressors are screening unscreened diversions, upgrading or installing fish passage facilities at diversion dams or other obstacles to fish migration, and limiting the adverse effects of introducing hatchery fish on wildlife.

Hatcheries in this and adjacent ecological zones will be operated to preserve the genetic identity of endemic, naturally spawning chinook salmon and steelhead trout stocks. Hatchery-produced fish will be used to support sustainable ocean recreational and commercial fisheries and directed fisheries in the natal streams. Marking techniques will enable sport and commercial anglers to distinguish between hatchery-produced and naturally produced fish. Additional genetic analysis of the Feather River (and Yuba River) spring-run chinook population is necessary to determine the value and role of this stock in efforts to rebuild Feather River and other basin populations.

Green sturgeon and white sturgeon use the Feather River for spawning, but additional studies are needed to identify and describe the species' habitat requirements and status in this basin. The Feather River could contribute more substantially to the overall sturgeon health and abundance if the species' life history and habitat requirements were known and habitat conditions maintained to benefit sturgeon along with other important species.

VISIONS FOR ECOLOGICAL UNITS

FEATHER RIVER ECOLOGICAL UNIT

The vision for the Feather River Ecological Unit is to improve natural spawning populations of spring- and fall-run chinook salmon and steelhead. This involves improving spring (March) flows below Oroville in dry and normal water-years, improving spring through fall base flows, and improving spawning and rearing habitat in the lower river below Oroville.

The vision for the Feather River includes reactivating or maintaining important ecological processes that create and sustain habitats for anadromous fish. The Feather River must not only contribute substantially to the growth of many fish populations, but provide better support for naturally spawning steelhead, fall- and spring-run chinook salmon, American shad, white and green sturgeon, and striped bass. The most important processes include floodplain and flood processes and a natural streamflow pattern in the river, to which most of the anadromous and resident native fishes are adapted.

Higher, more natural spring flow events will help spring-run chinook salmon, steelhead, sturgeon, American shad, and striped bass move upstream into the Feather River during their traditional migrations in spring. Higher flows will also benefit juvenile fall-run chinook salmon migrating downstream and juvenile salmon migrating out of lower Feather River tributaries. These flows will also benefit stream-channel and riparian vegetation in the lower river and, consequently, will benefit fish. Improved riparian habitat will also benefit riparian-associated wildlife, such as those in the neotropical migratory bird guild. The added flows coming from the Feather River will also benefit juvenile salmon and steelhead from other Feather and Sacramento River tributaries in their journey through the lower Sacramento River below the Feather River and through the Delta and Bay.

Improving habitat in the lower Feather River will encourage natural production of these anadromous fish. Improving spawning habitat will increase young salmon and steelhead production. Restoring or maintaining stream-channel and riparian vegetation will increase the survival and production of juvenile salmon and steelhead.

YUBA RIVER ECOLOGICAL UNIT

The vision for the Yuba River is to improve spring streamflows for spawning runs of spring-run chinook salmon (potentially), steelhead, sturgeon, and American shad. These flows will also benefit downstream migration of juvenile fall-run chinook salmon, steelhead, and sturgeon. Improving streamflows will also benefit stream-channel and riparian habitat; native resident species, including splittail, that spawn farther downstream in the Feather River; and other species that reside further downstream in the Bay-Delta estuary. The vision also includes evaluation of gravel recruitment and sediment transport processes, stream-channel configuration, and riparian habitats in the lower Yuba River floodplain to improve anadromous and resident fish production and survival. Improvements in upper Yuba watershed management will also improve upper watershed health and help protect the natural, unimpaired streamflow and water quality.

At present, sufficient stored water remains in the Yuba River system (in New Bullards Bar Reservoir) to help restore the river's anadromous fish runs. Providing the needed streamflow,

then the temperature requirements of American shad can be addressed.

UPPER WATERSHED PROCESSES

IMPLEMENTATION OBJECTIVE: The implementation objective for upper watershed health and function is to restore ecological processes in the upper watersheds to maintain and improve of water quality and quantity flowing into Sacramento-San Joaquin Delta and San Francisco Bay tributaries and rivers.

TARGET 1: Restore upper watershed processes (◆).

PROGRAMMATIC ACTION 1A: Reduce excessive fire fuel loads in upper watersheds.

PROGRAMMATIC ACTION 1B: Improve forest management practices, including practices relating to timber harvest, road building and maintenance, and livestock grazing.

PROGRAMMATIC ACTION 1C: Develop a watershed management plan.

RATIONALE: *Improving watershed processes will maintain and restore seasonal runoff patterns, water yield, and water quality and reduce sediment load to downstream storage reservoirs (consequently reducing storage capacity and improving water quality). Healthier watersheds will also benefit upper watershed habitats and species.*

HABITATS

SEASONAL WETLANDS

IMPLEMENTATION OBJECTIVE: Restore and manage seasonal wetland habitat to:

- restore foodweb and floodplain processes,
- reduce the effects of contaminants and water management on the Delta's aquatic resources; and
- provide high-quality foraging and resting habitat for wintering waterfowl, greater sandhill cranes, and migratory and wintering shorebirds.

This will help to restore and maintain the ecological health of the aquatic resources in and dependent on the Delta.

TARGET 1: Assist in protecting 500 acres of existing seasonal wetland habitat through fee acquisition or perpetual easements consistent with the goals of the Central Valley Habitat Joint Venture and the North American Waterfowl Management Plan (◆◆).

PROGRAMMATIC ACTION 1A: Develop and implement a cooperative program to improve management of 500 acres of existing, degraded seasonal wetland habitat in the Sutter Bypass Ecological Unit.

TARGET 2: Develop and implement a cooperative program to enhance 3,090 acres of existing public and private seasonal wetland habitat consistent with the goals of the Central Valley Habitat Joint Venture and the North American Waterfowl Management Plan (◆◆).

PROGRAMMATIC ACTION 2A: Restore and manage seasonal wetland habitat throughout the Sutter Bypass Ecological Unit.

RATIONALE: *Restoring seasonal wetland habitats along with aquatic, permanent wetland, and riparian habitats is an essential element of the restoration strategy for the Feather River/Sutter Basin Ecological Zone. Restoring these habitats will also reduce the amount and concentrations of contaminants that could interfere with restoring the ecological health of the aquatic ecosystem. Seasonal wetlands support a high production rate of primary and secondary food species and large blooms (dense populations) of aquatic invertebrates.*

Wetlands that are dry in summer are also efficient sinks for the transformation of nutrients and the

PROGRAMMATIC ACTION 3A: Develop a cooperative program to evaluate and screen diversions in the Feather River to protect all anadromous fish life stages.

RATIONALE: Water diversion, storage, and release in the watershed directly affect fish, aquatic organisms, and nutrient levels in the system and indirectly affect habitat, foodweb production, and species abundance and distribution. Unscreened diversions cause direct mortality to young fish; the level of mortality is likely influenced by the number of young fish present, diversion size, and diversion timing.

DAMS, RESERVOIRS, WEIRS, AND OTHER STRUCTURES

IMPLEMENTATION OBJECTIVE: The implementation objective for dams, reservoirs, weirs, and other structures is to increase the upstream spawning and rearing habitat connection with the mainstem rivers in the Sacramento-San Joaquin basin. This would increase success of adult spawners and survival of juvenile downstream migrants.

TARGET 1: Increase adult and juvenile anadromous fish passage in the Yuba River by providing access to 100% of the available habitat below Englebright Dam (◆◆◆).

PROGRAMMATIC ACTION 1A: Develop a cooperative program to improve anadromous fish passage in the Yuba River by removing dams or constructing fish ladders, providing passage flows, keeping channels open, eliminating predator habitat at instream structures, and constructing improved fish bypasses at diversions.

PROGRAMMATIC ACTION 1B: Facilitate passage of spawning adult salmonids in the Yuba River by maintaining appropriate flows through the fish ladders or modifying the fish ladders at diversion dams.

PROGRAMMATIC ACTION 1C: Conduct a cooperative study to determine the feasibility of removing Englebright Dam on the Yuba River to allow chinook salmon and steelhead access to historical spawning and rearing habitats.

TARGET 2: Improve chinook salmon and steelhead passage in the Bear River by providing access to 100% of the available habitat below the SSID diversion dam (◆◆).

PROGRAMMATIC ACTION 2A: Improve chinook salmon and steelhead passage in the Bear River by negotiating with landowners to remove or modify culvert crossings on the Bear River.

RATIONALE: Dams and their associated reservoirs block fish movement, alter water quality, remove fish and wildlife habitat, and alter hydrologic and sediment processes. Other structures may block fish movement or provide habitat or opportunities for predatory fish and wildlife, which could be detrimental to fish species of special concern.

LAND USE

IMPLEMENTATION OBJECTIVE: Promote rangeland management practices and livestock stocking levels to maintain high-quality habitat conditions for wildlife, aquatic, and plant communities; protect special-status plants; protect riparian vegetation; maintain shaded riverine aquatic habitat; and prevent bank erosion.

TARGET 1: Protect, restore, and maintain ecological functions and processes in the Feather, Yuba, and Bear River watershed by eliminating conflicts between land use practices and watershed health (◆).

PROGRAMMATIC ACTION 1A: Work with landowners, land management agencies, and hydropower facility operators to protect and restore the watershed.

PROGRAMMATIC ACTION 1B: Work with landowners, land management agencies, and hydropower facility operators to increase chinook salmon and steelhead survival in the Feather, Yuba, and Bear Rivers and the Sutter Basin.

Implement land use plans that establish, restore, and maintain riparian habitats and create buffer zones between the streams and developments or other land use activities, such as livestock grazing.

RATIONALE: Land use in the Feather River/Sutter Basin Ecological Zone may stress ecosystem processes, functions, habitats, and aquatic and terrestrial organisms. Potentially harmful land use include urban and industrial development, land reclamation, construction and use of water-conveyance facilities, livestock grazing, and agricultural practices. Locally developed, comprehensive watershed management plans will provide the most readily usable structure for protecting and restoring ecological and resource values consistent with broad ecosystem restoration.

HARVEST OF FISH AND WILDLIFE

IMPLEMENTATION OBJECTIVE: The implementation objective for harvest is to regulate fish and wildlife harvest as necessary to avoid impairing reproductive capacity in relation to available habitat.

TARGET 1: Develop harvest management strategies that allow wild, naturally produced fish spawning populations to attain levels that make full use of existing and restored habitat, and focus harvest on hatchery-produced fish (◆◆◆).

PROGRAMMATIC ACTION 1A: Control illegal harvest by increasing enforcement efforts.

PROGRAMMATIC ACTION 1B: Develop harvest management plans with commercial and recreational fishery organizations, resource management agencies, and other stakeholders to meet target levels.

PROGRAMMATIC ACTION 1C: Reduce harvest of wild, naturally produced steelhead populations, where necessary, by marking hatchery-reared fish and instituting selective harvesting.

PROGRAMMATIC ACTION 1D: Evaluate a marking and selective fishery program for chinook salmon.

RATIONALE: Restoring and maintaining chinook salmon and steelhead populations to levels that take full advantage of habitat may require restricting harvest during and after the recovery period. Involving the various stakeholder organizations should help ensure a balanced and fair harvest allocation. Target population levels may preclude existing harvest levels of wild, naturally produced fish. For populations supplemented with hatchery-reared fish, selective harvesting may be necessary to limit wild fish harvest while harvesting hatchery-produced fish to reduce their potential to disrupt the genetic integrity of wild populations.

ARTIFICIAL PROPAGATION OF FISH

IMPLEMENTATION OBJECTIVE: The implementation objective for artificial fish propagation is to reduce the potentially adverse effects of stocking artificially produced fish throughout Central Valley rivers and streams. Reducing these effects would increase naturally produced fish survival, contribute to long-term restoration goals, and maintain the genetic diversity of naturally producing chinook salmon and steelhead populations.

TARGET 1: To protect naturally produced salmon and steelhead, minimize the likelihood that hatchery-reared salmon and steelhead produced in the Feather River Hatchery will stray into non-natal streams (◆◆◆).

PROGRAMMATIC ACTION 1A: Develop a cooperative program to evaluate the benefits of stocking hatchery-reared salmon and steelhead in the Feather River. Stocking levels may be reduced in years when natural production is high.

TARGET 2: Limit hatchery stocking if populuations of salmon or steelhead can be sustained by natural production (◆◆◆).

PROGRAMMATIC ACTION 2A: Augment fall-run chinook salmon and steelhead populations only

APPENDIX G

DRAFT MEMORANDUM OF AGREEMENT

I. Purpose and Need

This Memorandum of Agreement, dated _____, establishes a voluntary and cooperative commitment by the signatories to work together on Phase I of a watershed assessment and planning process to the extent of their individual authorities. Such voluntary action is geared toward improving resource management and increasing the public's understanding of the need for management prescriptions along the 40 miles of South Yuba River between Spaulding Dam and Englebright Reservoir.

This MOA is not a contract and is not legally binding; it is instead an agreement among the signatories to work together toward common goals to the extent possible. No signatory may be forced to take any action with which it does not concur.

This MOA is intended to focus the agencies with jurisdiction over the South Yuba River on coordinating activities, policies, regulations and future management decisions based on a better understanding of the current state of the South Yuba River and with the goal of achieving mutually agreed upon improvements to the long-term health of the watershed.

II. Mission Statement

This MOA is intended to serve as a framework to develop a watershed management strategy and establish guidelines for joint and cooperative planning and implementation to ensure the long-term health and protection of the South Yuba River watershed.

III. Goals and Objectives

The overall goal of this project is to reach and maintain a healthy South Yuba watershed. We know from experience that there are existing stresses and negative impacts on the South Yuba watershed, including but not limited to concentrated recreational use; road construction and maintenance practices; mining activities, past and present; wildfire and fuels management; etc.

The agencies with jurisdiction over this stretch of river wish to make management and policy decisions to remedy these negative impacts. But to do so, they have identified the desire to develop a comprehensive joint plan for more informed decision-making and effective river management prescriptions.

Before the agencies can develop an effective plan, however, they need more specific data on existing conditions and the extent of the impacts, both to help identify the

best management prescriptions and to use as a baseline for monitoring the effectiveness of methodologies chosen, based on measurable changes in water quality.

This MOA, therefore, proposes a phased assessment and planning approach, beginning with water quality inventorying and data gathering, that will establish the foundation for the future development of a joint management plan for the South Yuba River.

IV. Participants and Areas of Involvement

California Department of Parks & Recreation, Gold Mines Sector
- grant administration
- existing relevant studies and data
- technical expertise - user survey
- joint supervision of project coordinator

Tahoe National Forest, Nevada City Ranger District
- existing relevant studies and data - road inventory, fire history, fuels inventory
- technical expertise - assessment, monitoring, fire & fuels management
- GIS mapping
- meeting space
- joint supervision of project coordinator

USDI Bureau of Land Management, Folsom Field Office
- existing relevant studies and data - mining, user information
- technical expertise - recreation planning and fire & fuels management
- joint supervision of project coordinator

V. Agreement

Whereas the California Department of Parks & Recreation, the Bureau of Land Management and the Tahoe National Forest agree in principle on the following:

a. the South Yuba River from below Spaulding Dam to Englebright Reservoir should be managed cooperatively by the agencies with jurisdiction;
b. the South Yuba River from elow Spaulding Dam to Englebright Reservoir ought to be a healthy instream aquatic ecosystem;
c. the federal, state and local agencies with jurisdiction in this reach of river should work together to achieve healthy watershed standards based on a comprehensive river management plan that will best serve both the river and the public;
d. the above-mentioned agencies need better baseline information to accomplish the above-mentioned goals;
e. to achieve the stated goals, the above-mentioned agencies need a project administrator to coordinate and manage the workload and activities outlined;

be it therefore resolved that if appropriate funding is approved, the undersigned agree to hire and work with a project administrator to implement the objectives and tasks outlined in the attached program of work to the best of their ability.

VI. Signatures

Name	Title	Agency

APPENDIX H

South Yuba River Coordinated Watershed Management Plan

JOB DESCRIPTION: Project Coordinator

Tenure: Phase I: January 1999-December 2001 (36 mos.) at .5 FTE

The project coordinator will be contractually hired and supervised by the signatories of the South Yuba River Coordinated Watershed Management Plan Memorandum of Agreement (Forest Service, Bureau of Land Management, California Department of Parks & Recreation) to serve as the liaison with the South Yuba River Stewardship Council and to coordinate the research, monitoring and outreach work needed for Phases I of the proposed Coordinated Watershed Management Plan project, including the Watershed Assessment/Inventory.

Qualifications: This position requires communication and coordination skills to facilitate bringing communities and project activities together. Experience managing volunteers and creating and managing a budget also required. Knowledge of the Nevada County area, particularly the South Yuba River and its various constituent groups, is a requirement for this position, as is neutrality in local political issues during the time of the contract. Experience working with state and federal agencies is a plus.

Duties:

Coordinate development and implementation of project-related activities
Coordinate specific on-the-ground monitoring activities in conjunction with Proposition 204's RiverKeeper program and personnel
Serve as liaison between lead MOA agencies and the public
Coordinate and monitor progress of specific activities in the field
Work with agency personnel to design contracts
Oversee contract work and maintain financial records in conjunction with lead agency
Write and present all reports required by grantors
Organize raw data into summary report
Facilitate meetings, minutes and correspondence for the MOA group
Seek additional funding for Phases II-VI
Ensure compliance with any CEQA/NEPA requirements

APPENDIX I

INFORMATION SOURCES

22 Westside Rivers: Wild & Scenic River Study Report and Draft Environmental Impact Statement, USDA Forest Service and USDI Bureau of Land Management, 1996.

The South Yuba: A Wild and Scenic River Report, Tim Palmer for the South Yuba River Citizens League, March 1993.

Volume II: Ecosystem Restoration Program Plan, CALFED Bay-Delta Program, "Feather River/Sutter Basin Ecological Zone Vision, pp. 249-279. Draft: March 1998.

US Environmental Protection Agency Office of Water, Watershed Protection: A Project Focus, Chapters 5-8. Web address: http://www.epa.gov/OWOW/watershed

Important Natural Community Areas of Nevada County, Environment and Planning (for Nevada County Conservation Alliance), c/o Nevada County Land Trust, May 1998.

Sierra Nevada Ecosystem Project: Final Report to Congress, Vol. II, Chapter 34, "Biotic Integrity of Watersheds," Peter B. Moyle and Paul J. Randall. Davis: University of California, Centers for Water and Wildland Resources, 1996.

61029

United States Department of Agriculture | Forest Service | Tahoe National Forest

P.O. Box 6003
Nevada City, CA 95959-6003

(916) 265-4531
TDD (916) 478-6118
FAX (916) 478-6109

File Code: 1920-6

Date: May 8, 1996

Dear Interested Citizen:

Enclosed is the Draft Study Report/Draft Environmental Impact Statement (DEIS) for the Westside Wild and Scenic River Suitability Study for lands within and adjacent to the Tahoe National Forest. Please note the Draft Report/DEIS provides for a 90-day time period for your review and comment.

The purpose of this Study Report/DEIS is to evaluate twenty-two rivers and streams within the Yuba and American River drainages for possible addition to the National Wild and Scenic Rivers System.

The Forest Service has identified Alternative C as the Preferred Alternative. Alternative C recommends National Recreational and Scenic Status for the North Yuba River, Canyon Creek, and the South Yuba River below Spaulding Reservoir.

Wild and Scenic River designation provides that a detailed Management Plan be developed for those rivers found suitable by the Congress as additions to the National Wild and Scenic River System. It is anticipated a plan would be developed that provides specific management direction for those rivers soon after designation by the Congress. Development of a Management Plan would be in accordance with requirements of the National Environmental Policy Act (NEPA) and would include extensive public involvement.

You can greatly assist us by providing your thoughts and suggestions regarding this proposal. We are particularly interested in any specific suggestions that may improve these recommendations or any additional information that could result in changing the recommendations. We need your comments by August 8, 1996. Please send your comments to Phil Horning, Tahoe National Forest, P.O. Box 6003, Nevada City, California 95959. Thank you for taking the time to review and comment on this document and please feel free to contact us if you have any questions.

Sincerely,

JOHN H. SKINNER
Forest Supervisor
Tahoe National Forest (TNF)

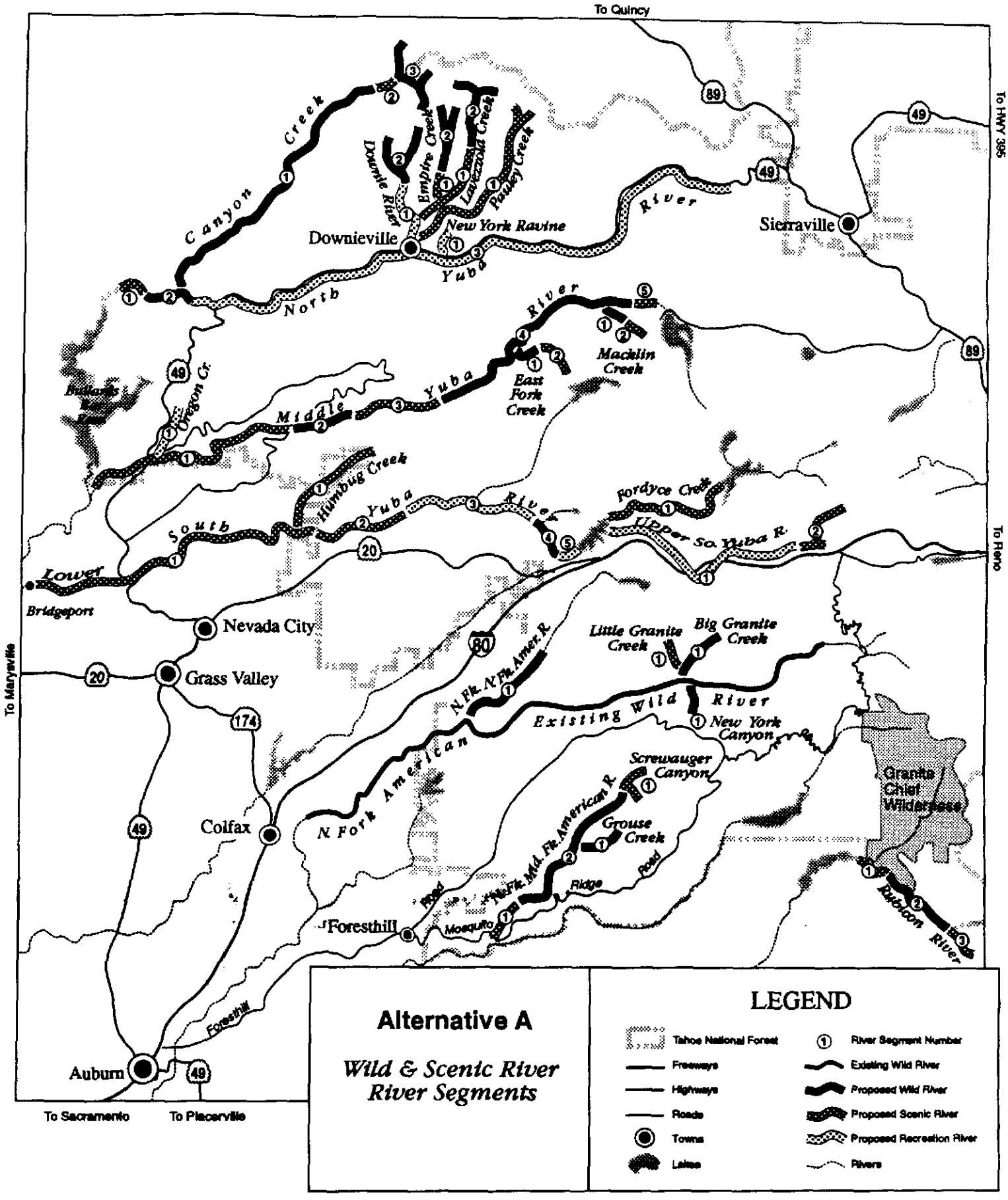
D. K. SWICKARD
Area Manager
Folsom Resource Area (BLM)

Errata
Text
and
Maps

22 Westside Rivers Wild and Scenic River Study Report / Draft Environmental Impact Statement
Errata Sheet

Page	Paragraph	Incorrect Text / *Problem Area*	Correct Text / Number
i-2	P2	*River listing*	*Add the Downie and Rubicon River to the River listing. Delete the North Fork of the North Fork American River from under the Middle Fork American River drainage listing.*
i-2	P2	*Listing of rivers by drainage*	
II	Maps	See attached pages for corrected alternative maps	
II-8	P2	will wish to assume except.	will wish to assume.
II-12	P1	Alternative C	Alternative E
II-14	P2	Appendix A	Appendix C
II-14	P5	*Paragraph*	*Delete the whole paragraph*
II-15	P3	be changed through a Forest Plan amendment	apply as is
II-16	P2	Appendix A	Appendix C
III-4	Table III-1	*Middle Yuba River listing of values*	*Add cultural as value*
III-4	Table III-1	*Upper South Yuba River listing of values*	*Add history as value*
III-5	Table III-1	*Humbug Creek*	*Add recreation as a value*
III-5	Table III-1	*Little Granite Creek listing of values*	*Add recreation as a value*
IV-25	P1	Table VI-8	Table IV-8
IV-48	P1	2 miles of scenic river	2 miles of scenic river
V-7	P1	Appendix A	Appendix C
V-17	P4	See Table V-2	See Table V-3
V-20	P2	See Table V-2	See Table V-3
V-20	P4	See Table V-2	See Table V-3
R-7	P4	Semi-Primitive and Primitive Scenic Values	Add Recreation after Primitive
R-13	P6	Recreational values	Cultural values
R-20	P1	east of Jackson Reservoir.	from the outlet of Milton Reservoir
R-27	P2	year of 2003	year of 2013
R-29	P6	Land Act	Land Act purchase
R-35	P5	land	land acquisition
R-43	P1	Grouse Creek provides	Grouse Creek provided
R-46	P5	a few unobtrusive mines	a few unobtrusive mining activities

This table represents content errors. Grammatical Errors have been accounted for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Foresthill
Bridgeport
Canyon Creek
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Empire Creek
Lavezzola Creek
Pauley Creek
New York Ravine
North Yuba River
Middle Yuba River
South Yuba River
Lower Bridgeport
Oregon Cr
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Mackiln Creek
Fordyce Creek
Upper So. Yuba R.
Little Granite Creek
Big Granite Creek
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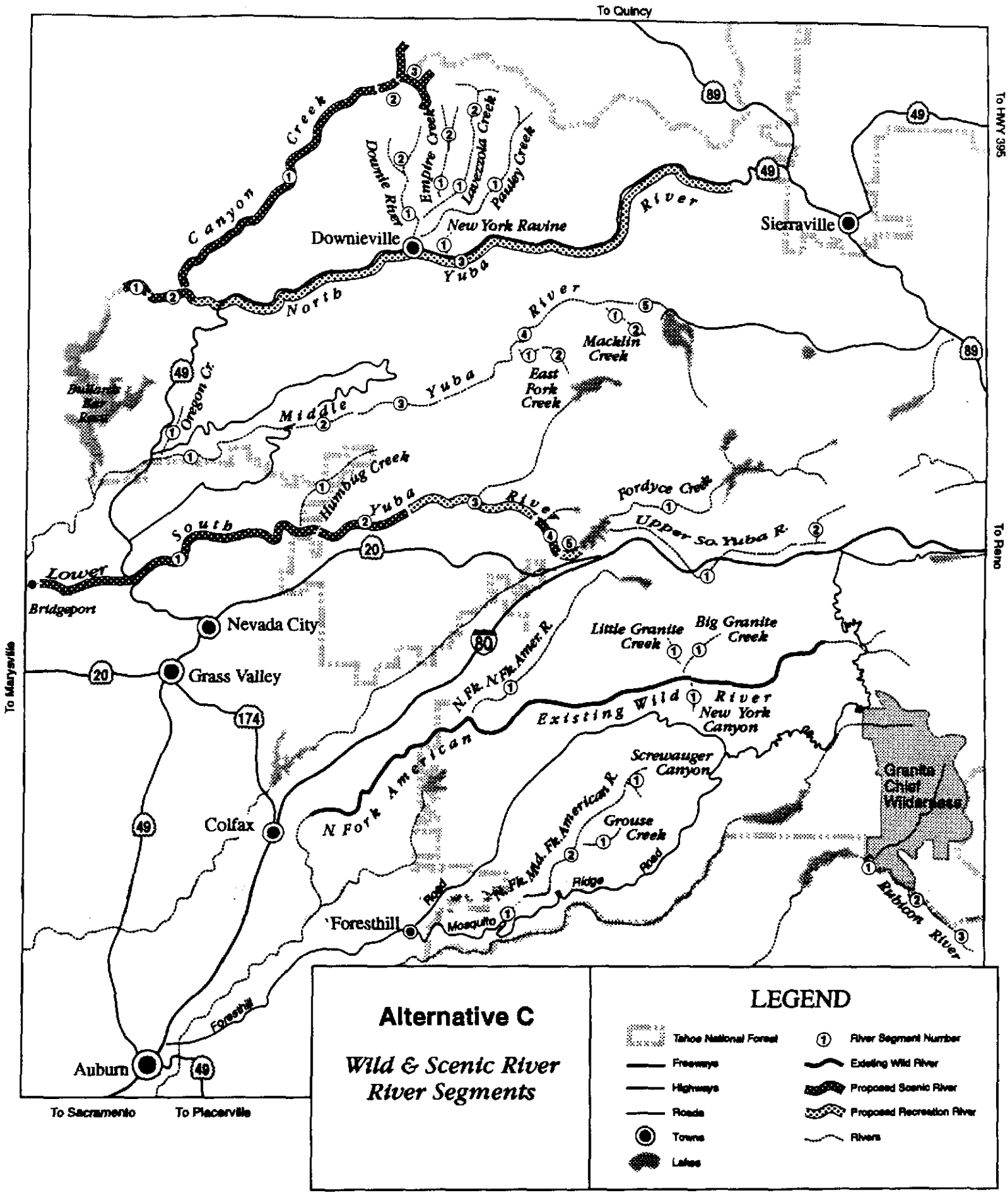
Screwauger Canyon
Grouse Creek
Mid. Fk. American R.
Ridge Road
Mosquito Ridge Road
Granite Chief Wilderness
Rubicon River
Alternative A
Wild & Scenic River
River Segments
LEGEND
Tahoe National Forest
Freeways
Highways
Roads
Towns
Lakes
River Segment Number
Existing Wild River
Proposed Wild River
Proposed Scenic River
Proposed Recreation River
Rivers

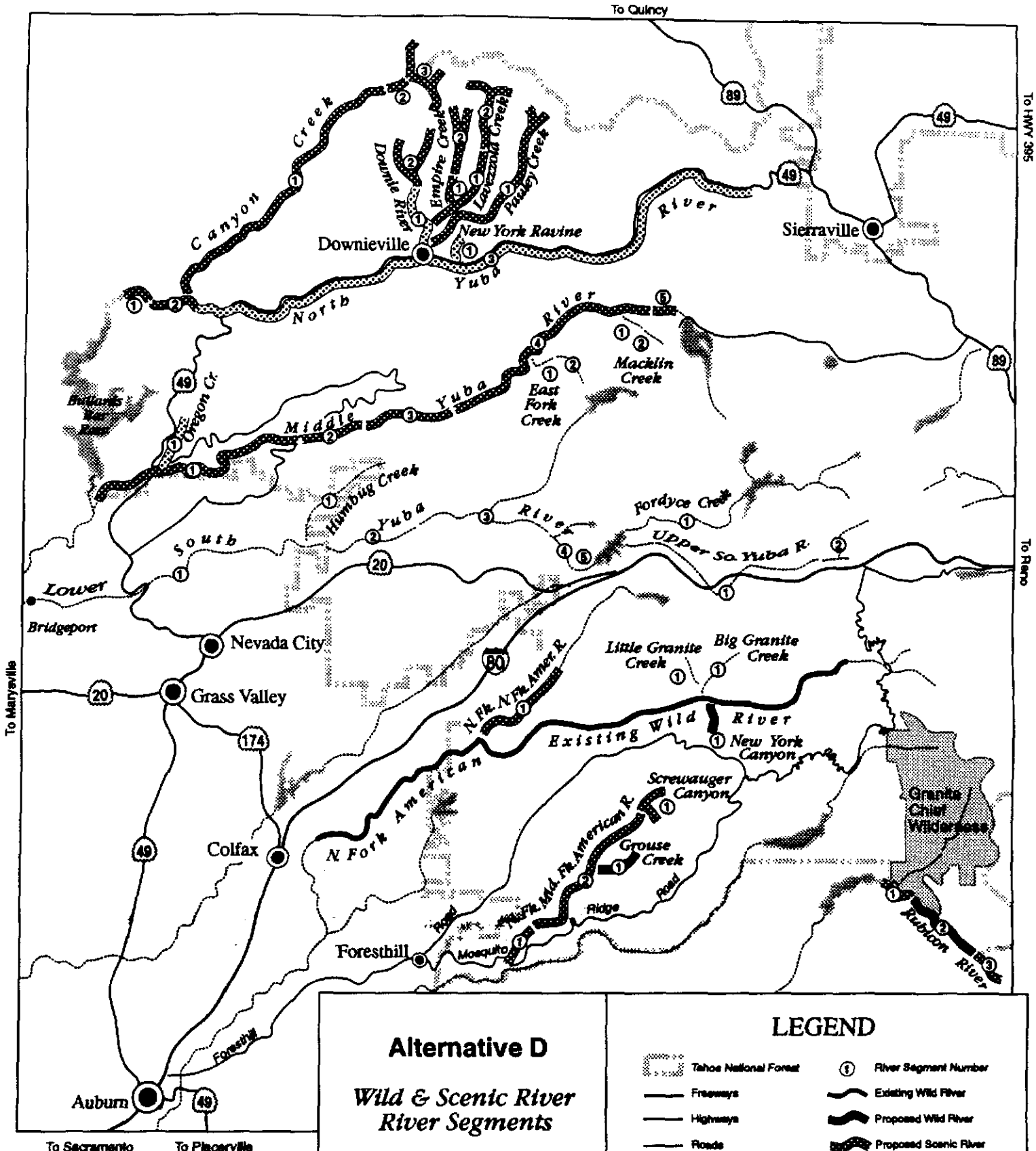


Alternative C

Wild & Scenic River River Segments

LEGEND

- Tahoe National Forest
- Freeways
- Highways
- Roads
- Towns
- Lakes
- River Segment Number
- Existing Wild River
- Proposed Scenic River
- Proposed Recreation River
- Rivers


To Quincy
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To Reno
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Canyon Creek
Downie River
Empire Creek
Lavezzola Creek
Poorman Creek
New York Ravine
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North Yuba River
Sierraville
Oregon Cr.
Middle Yuba River
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Macklin Creek
Humbug Creek
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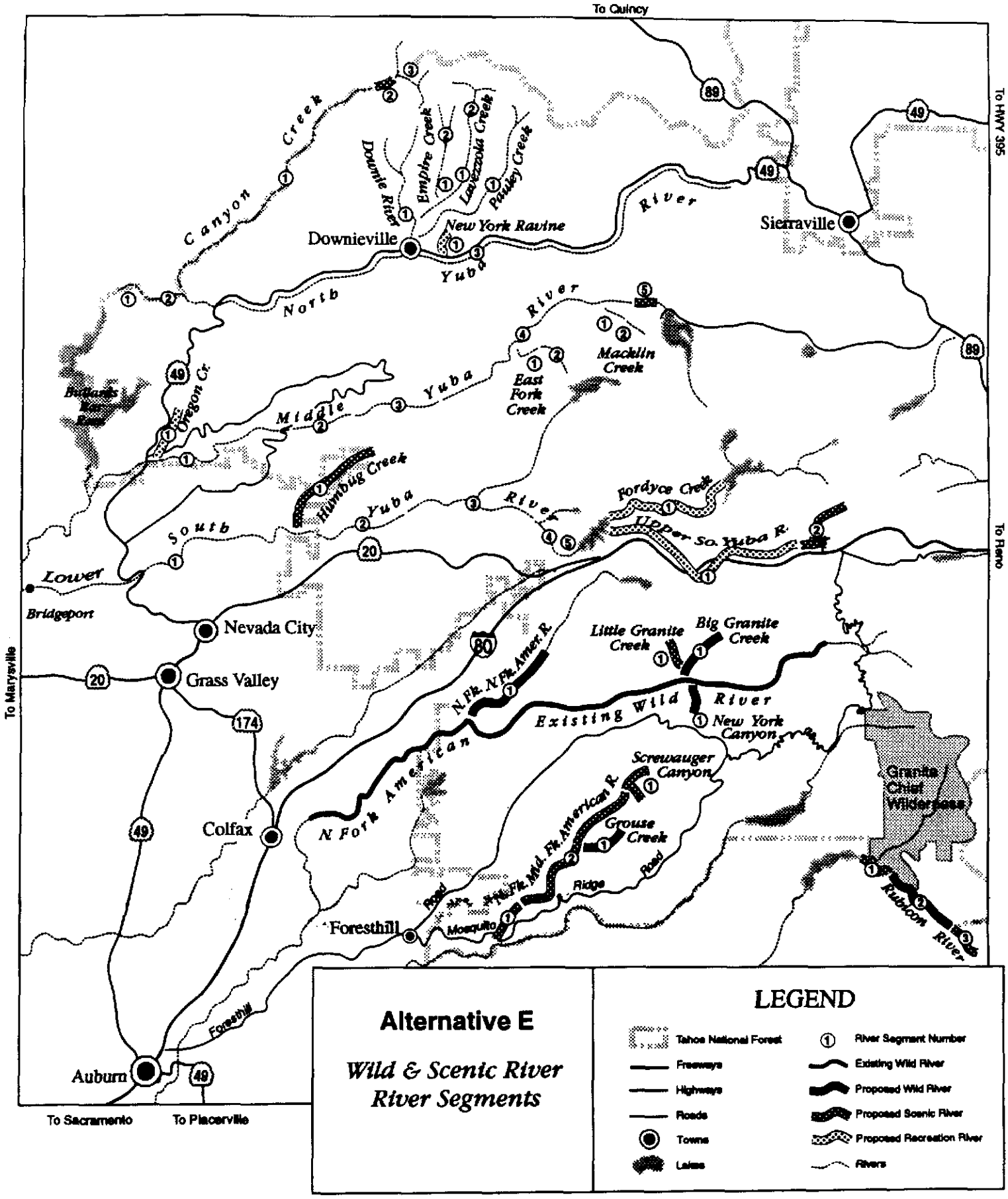
To Quincy
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Poulsy Creek
New York Ravine
Yuba River
North Yuba River
Middle Yuba River
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Oregon Cr.
Humbug Creek
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Alternative E
Wild & Scenic River
River Segments
LEGEND
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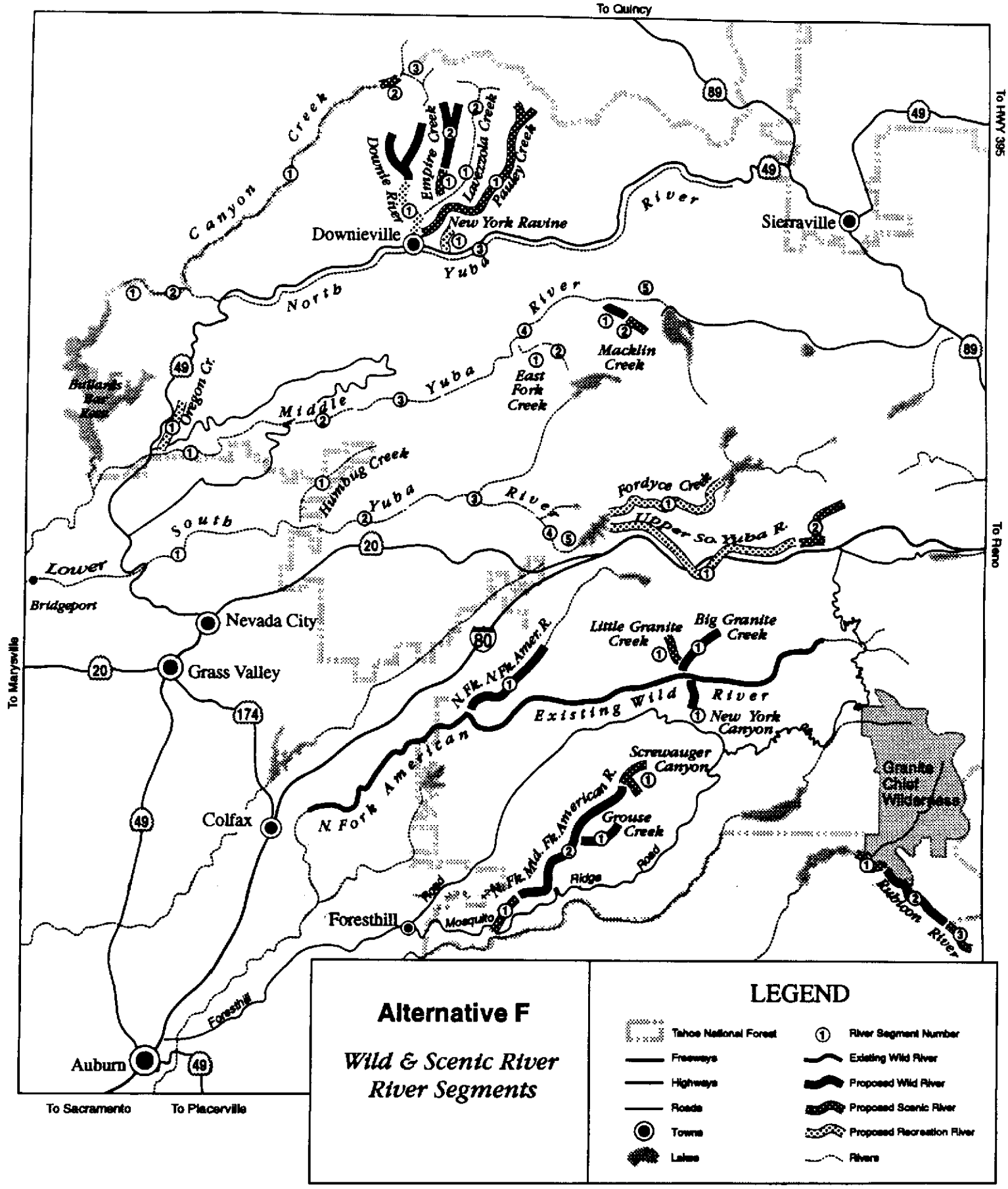


Alternative F

Wild & Scenic River River Segments

LEGEND

- Tahoe National Forest
- Freeways
- Highways
- Roads
- Towns
- Lakes
- River Segment Number
- Existing Wild River
- Proposed Wild River
- Proposed Scenic River
- Proposed Recreation River
- Rivers

United States Department of Agriculture

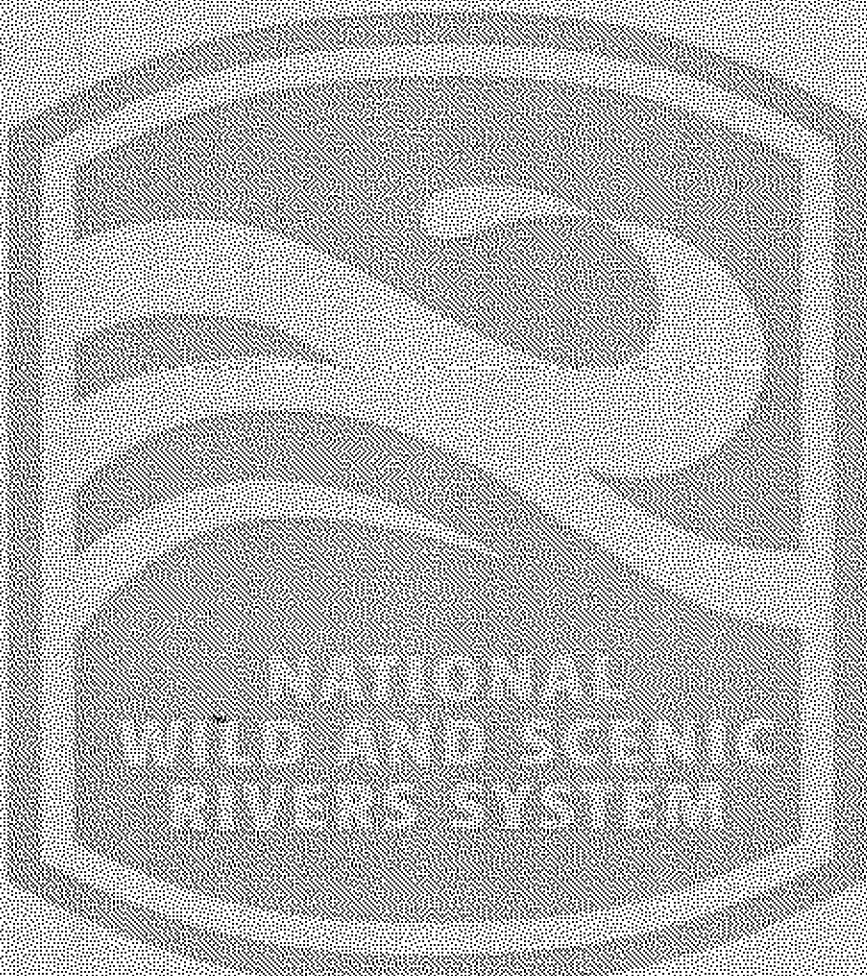
Forest Service
Pacific Southwest Region

Tahoe National Forest

22 Westside Rivers

Wild & Scenic River Study Report
Draft Environmental Impact Statement

Tahoe National Forest
Bureau of Land Management
Eldorado National Forest
Plumas National Forest
California Department of Parks and Recreation



TAHOE NATIONAL FOREST
and
BUREAU OF LAND MANAGEMENT

Wild and Scenic Rivers Study Report
and
Draft Environmental Impact Statement

Placer, Nevada, Sierra, Plumas, El Dorado, and Yuba Counties, California

Type of Environmental Impact Statement:	Legislative (ammendment to Forest Plan)
Lead Agency:	USDA Forest Service
Co-Lead Agency:	USDI Bureau of Land Management (for BLM jurisdiction on the western half of the lower South Yuba River)
Responsible Officials:	Dan Glickman Secretary of Agriculture (Congressional Recommendation) John Skinner, Forest Supervisor Tahoe National Forest (Responsible for completion of Study) Ron Fellows, District Manager Bureau of Land Management, Folsom District Secretary of the Interior, Bruce Babbit (Congressional Recommendation)
For Information Contact:	Wild and Scenic River Staff P.O. Box 6003 Nevada City, California 95959 Phone: (916) 265-4531

Abstract

This Study Report/Draft Environmental Impact Statement (DEIS) documents the results of an analysis of 22 rivers to determine their suitability for inclusion into the National Wild and Scenic Rivers System. The study area is located in Nevada, Sierra, Plumas, Yuba, El Dorado, and Placer Counties, California. The study streams are located primarily on the Tahoe National Forest but also flow through Bureau of Land Management lands as well as lands located on the Plumas and Eldorado National Forests.

The 22 rivers (the upper and lower South Yuba River are counted as one river) under study are broken out by drainage as follows:

North Yuba River Drainage
Canyon Creek
Empire Creek
Lavezzola Creek
Pauley Creek
New York Ravine
North Yuba River

Middle Yuba River Drainage
Macklin Creek
East Fork Creek
Oregon Creek
Middle Yuba River

South Yuba River Drainage
Humbug Creek
Fordyce Creek
South Yuba River

Middle Fork American River Drainage
North Fork, Middle Fork American River
North Fork, North Fork American River
Grouse Creek
Screwauger Canyon

North Fork American River Drainage
North Fork, North Fork American River
Big Granite Creek
Little Granite Creek
New York Canyon

The alternatives considered are: A) Designate all rivers; B) Designate no rivers; C) Designate three rivers D) Designate fourteen rivers E) Designate ten rivers F) Designate fifteen rivers.

The Preferred Alternative (Alternative C) recommends designation of the lower South Yuba River, Canyon Creek, and the North Yuba River as National Wild and Scenic Rivers.

Reviewers should provide the Forest Service with comments during the 90-day review period of the study report/DEIS. This will enable the Forest Service to analyze and respond to the comments in the final study report/FEIS and include reviewers' comments in the decision-making process. Comments on the study report/DEIS should be specific and should address the adequacy of the analysis or the merits of the alternatives discussed (40 CFR 1503.3).

Comments to be received by:_____

Comments should be sent to: Wild and Scenic River Staff
P.O. Box 6003
Nevada City, CA 95959

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Acronyms and Abbreviations

ASQ	Annual Sale Quantity
BA / BE	Biological Assessment / Biological Evaluation
BLM	Bureau of Land Management (USDI)
BOR	Bureau of Reclamation
CDF	California Department of Forestry
CDF&G	California Department of Fish and Game
CFR	Code of Federal Regulations
DEIS	Draft Environmental Impact Statement
EDD	Employment Development Department
EPA	Environmental Protection Agency
FEIS	Final Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
FSH	Forest Service Handbook
F&WS	US Fish and Wildlife Service
HCRS	Heritage Conservation and Recreation Service
IDT	Interdisciplinary Team
LEIS	Legislative Environmental Impact Statement
LWD	Large Woody Debris
NEPA	National Environmental Policy Act
NHPA	National Heritage Protection Act
NID	Nevada Irrigation District
NPS	National Park Service (USDA)
NRI	Nationwide Rivers Inventory
NFNFAR	North Fork of the North Fork American River
NFMFAR	North Fork of the Middle Fork American River
NWSRS	National Wild and Scenic River System
PCWA	Placer County Water Agency
PG&E	Pacific Gas and Electric
PILT	Payment in Lieu of Taxes
RNA	Research Natural Area
ROS	Recreation Opportunity Spectrum
SIA	Special Interest Area
SMZ	Streamside Management Zone
SPI	Sierra Pacific Industry
SRA	State Recreation Area
TEPS	Threatened, Endangered,Proposed, Sensitive Species
TES	Threatened and Endangered Species
THP	Timber Harvest Plan
TLRMP	Tahoe Land and Resource Management Plan
TNF	Tahoe National Forest
TROA	Truckee River Operating Agreement
USDA	United States Department of Agriculture
USDI	United States Department of Interior
USFS	United States Forest Service
VQO	Visual Quality Objectives
YCWA	Yuba County Water Agency

SUMMARY

Introduction

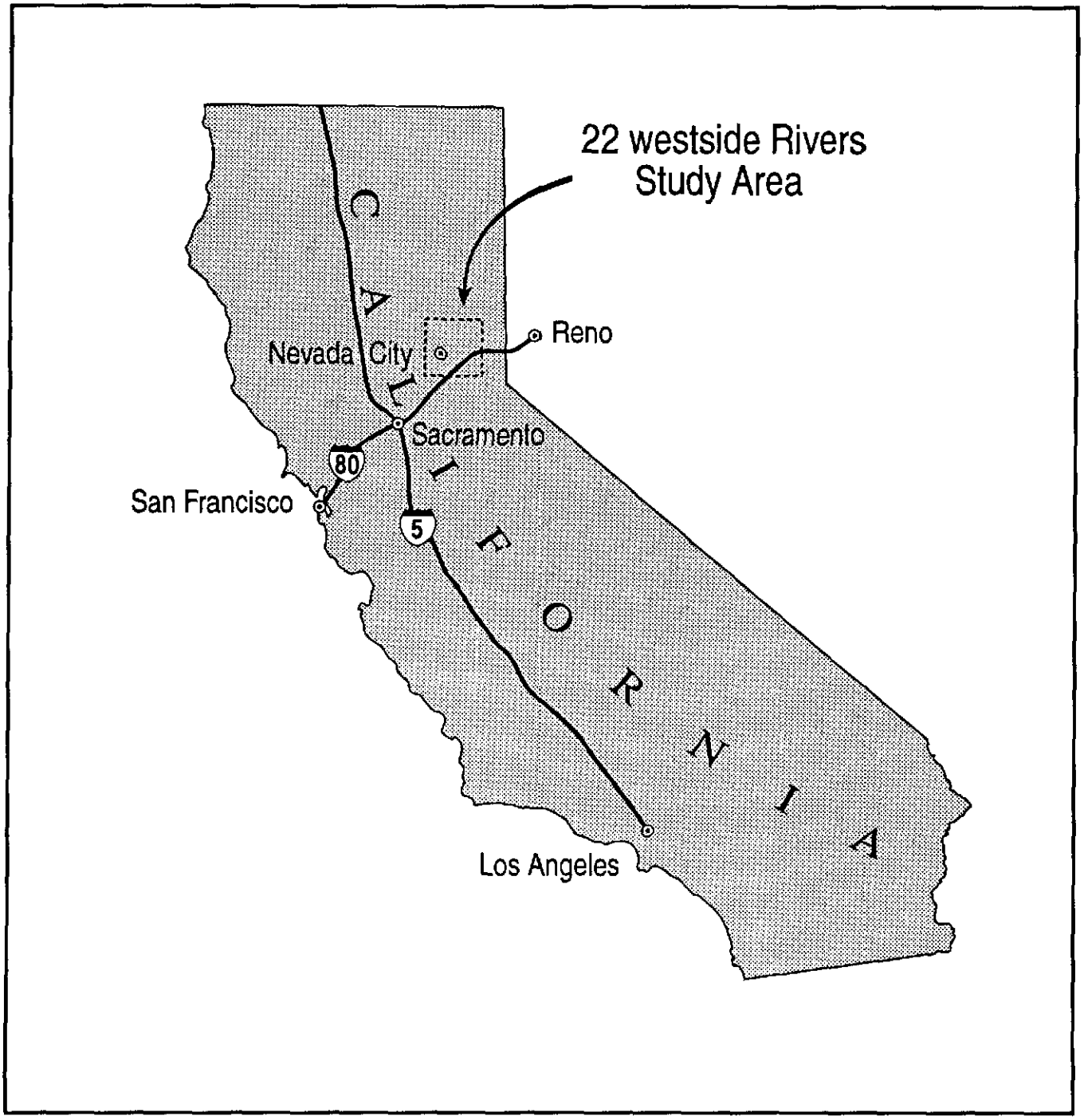
This Wild and Scenic River Study Report/Draft Environmental Impact Statement (DEIS) analyzes the suitability of twenty-two rivers within and adjacent to the Tahoe National Forest for inclusion in the National Wild and Scenic Rivers System. The Study Report/DEIS further evaluates the environmental consequences of such designation on the human environment.

During the course of developing the Tahoe National Forest Land and Resource Management Plan 1990 (TLRMP), the public stated that the TNF had not adequately inventoried its rivers for possible wild and scenic river classification. A subsequent inventory was conducted and twenty-two rivers on the west side of the Sierra crest were identified as eligible for a wild and scenic river suitability study.

One river, the Middle Fork American River, although eligible, is not evaluated in this Study Report/DEIS. The Middle Fork American River flows mostly through Bureau of Land Management lands presently managed by California State Parks for the Bureau of Reclamation, with only 10 percent of the river flowing through the Tahoe National Forest (TNF) and about 15 percent of the Eldorado National Forest. National Forest System lands are located on the upper end of the Middle Fork American River. The Bureau of Reclamation will address suitability of the Middle Fork American River as part of their water use study for the Middle Fork and North Fork American Rivers.

The twenty-two remaining rivers selected for study are located on the western slope of the Sierra crest, mostly within the boundaries of the TNF. Canyon Creek has shared boundaries with the Plumas and Tahoe National Forests while the Rubicon River has shared boundaries with the Eldorado and Tahoe National Forests. One segment of the Lower South Yuba River is located on Bureau of Land Management and State Park lands. All four rivers (Canyon Creek, North Yuba River, Rubicon River, and the Lower South Yuba River) are being studied in coordination with the other National Forests, the Bureau of Land Management, and State Parks. All eligible rivers are within the State of California and are located in Sierra, El Dorado, Nevada, Placer, Yuba, and Plumas Counties (see page S-2 for study location map).

Study Location Map



This DEIS summarizes and incorporates by reference the findings of the eligibility study, focuses on classification and suitability of eligible segments for inclusion in the National Rivers System, and provides an assessment of the potential environmental impacts of the alternatives under consideration.

The DEIS is related to the FEIS for the Tahoe Land and Resource Management Plan (TLRMP), and actions are consistent with direction contained within the TLRMP. This same concept applies to the LMPs of the Eldorado and Plumas National Forests where appropriate. After completion of the review process under the National Environmental Policy Act (NEPA), the Secretary of Agriculture may recommend that all, some, or none of the study rivers be designated as part of the National Wild and Scenic Rivers System. If the rivers are found to be not suitable, the Regional Forester will make that decision and will document that in the Record of Decision (ROD). **Congress has final authority for designating wild and scenic rivers.**

All rivers considered within the DEIS are free-flowing. Currently there are no active proposals for any water or power development projects that might threaten their free-flowing status, however, local water agencies have water development proposals that they are continuing to consider for some time in the future.

Study Process

The first phase of this wild and scenic river study was eligibility determination, an analysis of resources within the study corridor (the river and 1/4 mile of the land on each side of the river banks) to see whether a river was eligible to be considered for federal designation. All river segments were found to be eligible because they were free-flowing and possessed one or more outstandingly remarkable values: scenery; geology and hydrology; wildlife; ecological; botanical; fisheries; cultural resources; and recreation.

The second phase of the study was the classification inventory. The classification inventory determined whether a river should receive a recreational, scenic, or wild classification should it become designated. This determination was based on the level of development present in the river corridor.

The suitability analysis is the third phase of the study. During the suitability study alternative recommendations were created. This allows decision makers to see the costs and benefits of recommending different groups of rivers. The analyses in Chapter V and Appendix D (individual river descriptions document the river values and effects).

Key Study Issues

Eight key issues guided the development and evaluation of the alternatives:

1. Long-term protection or enhancement of important instream and shoreline resources from water development.

2. Long-term protection of existing water development facilities and the opportunity to develop future water projects as needs are identified.

3. Long-term protection or enhancement of important upland resources, including scenery, wildlife habitat, botanical resources, and geology.

4. Protection of traditional resource uses and heritage resource sites.

5. Protection of public access, mining, and recreation opportunities.

6. The effects of designation and resource protection actions on private property rights and the economic viability of existing and future resource uses, including timber harvest and mining.

7. County and State support for designation and their willingness to be involved in future river management.

8. Cost and barriers to implementing required actions.

Summary of Alternatives

The action alternatives considered are: A) Designate all rivers; B) Designate no rivers; C) Designate three rivers; D) Designate fourteen rivers; E) Designate ten rivers; F) Designate fifteen rivers. The alternatives were developed in response to issues raised during the scoping process for this study.

The Forest Service has selected for recommendation Alternative C, which includes designation of the Lower South Yuba River, Canyon Creek, and North Yuba River. Table S.1 "Rivers by Alternative" describes the rivers evaluated by alternative. Table S.2 "Issues/Resource indicators by Alternative", and Table S.3 "Summary of Environmental Consequences" from wild and scenic river designation describe the environmental consequences associated with each river and alternative.

Table S-1
Rivers by Alternative

Alternative A
All Rivers

Alternative B
No Rivers

Alternative C
Canyon Creek
North Yuba River
South Yuba River (lower)

Alternative D
Canyon Creek
North Yuba River
N.F.M.F.A.R.
Screwauger Canyon
Grouse Creek
Rubicon River
Middle Yuba River
New York Canyon
Downie River
Empire Creek
Lavezzola Creek
New York Ravine
N.F.N.F.A.R.
Pauley Creek

Alternative E
N.F.M.F.A.R.
N.F.N.F.A.R.
Oregon Creek
Fordyce Creek
Grouse Creek
Rubicon River
New York Canyon
New York Ravine
Humbug Creek
South Yuba River (upper)

Alternative F
N.F.M.F.A.R.
N.F.N.F.A.R.
Oregon Creek
Fordyce Creek
Grouse Creek
Rubicon River
New York Canyon
New York Ravine
Downie River
Empire Creek
Screwauger Canyuon
Macklin Creek
Big Granite Creek
Little Granite Creek
Pauley Creek

Table S-2

Issues / Resource Indicators by Alternative

1) Long-term protection or enhancement of important instream and shoreline resources.

Indicator	A	B	C	D	E	F
Miles of river recommended	297	0	114	204	81	117
Number of rivers recommended	22	0	3	14	10	15

Miles of river recommended equals miles precluded from development.

2) Long-term protection of existing water development facilities and the opportunity to develop future water projects as needs are identified.

Indicator	A	B	C	D	E	F
Miles of river recommended	297	0	114	204	81	117

Miles recommended equals miles of river precluded from development.

3) Long-term protection or enhancement of important upland resources, including scenery, wildlife habitat, botanical resources, and geology.

Classification	A	B	C	D	E	F
Wild acres	33,838	0	0	21,293	8,650	14,976
Scenic acres	35,834	0	20,636	21,724	9,027	11,100
Recreation acres	23,523	0	15,031	15,361	6,395	3,989

4) Protection of traditional resource uses and heritage resource sites.

Classification	A	B	C	D	E	F
Wild acres	33,838	0	0	21,293	8,650	14,976
Scenic acres	35,834	0	20,636	21,724	9,027	11,100
Recreation acres	23,523	0	15,031	15,361	6,395	3,989

5) Protection of public access, mining, and recreation opportunities.

Indicator	A	B	C	D	E	F
Percent of public land	71	0	76	82	60	75
Acres of public land	66,373	0	27,351	51,593	14,458	22,653

Classification	A	B	C	D	E	F
Wild acres	33,838	0	0	21,293	8,650	14,976
Scenic acres	35,834	0	20,636	21,724	9,027	11,100
Recreation acres	23,523	0	15,031	15,361	6,395	3,989

6) Protection of private property rights and the economic viability of existing and future resource uses, including timber harvest and mining.

Indicator	A	B	C	D	E	F
Percent of private land	29	0	24	18	40	25
Acres of private land	26,822	0	8,431	11,627	9,614	7,412
Miles of river recommended.	297	0	114	204	81	117

Classification	A	B	C	D	E	F
Wild acres	33,838	0	0	21,293	8,650	14,976
Scenic acres	35,834	0	20,636	21,724	9,027	11,100
Recreation acres	23,523	0	15,031	15,361	6,395	3,989

7) County and State support for designation and their willingness to be involved in future river management.

No formal County imput received yet.

8) Cost and barriers to implementing required actions.

Indicator	A	B	C	D	E	F
Estimated init. mgnt costs rounded into thousands	916	0	424	519	231	298

Summary of Environmental Consequences

Resource	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Water Quality and Quantity	Moderate impacts on water quality due to increased recreation use with limited sanitary facilities. Opportunity to regulate mining activities on wild segments that contribute to sediment loading in the streams. Heavy impacts on future development of water supply and hydroelectric power development (no dams allowed on designated rivers).	Water quality would remain the same. Stream flow may be dramatically altered if dams are constructed. Water quantity would not be effected as dams would continue to be an option.	No wild segments are proposed; water quality may be effected if land use activities elevate sedimentation. Designation of a stream may also result in increased recreation use which will raise the bacterial levels in the water near recreation sites. Impacts to rivers not recommended discussed under Alternative B.	See Alternative A for impact discussion on recommended rivers. Impacts to rivers not recommended discussed under Alternative B.	See Alternative A for discussion on recommended rivers. Impacts to rivers not recommended discussed under Alternative B.	Water quality is subject to the same bacterial concerns as those listed under Alternative A & C. All the rivers with potential dam sites are excluded in this alternative reducing impacts to water development (water quantity). River segments have been modified to provide for up-graded facilities at Hell Hole Reservoir and Spaulding Reservoir. Impacts to rivers not recommended discussed under Alternative B.
Landowners & Land Use	High potential to impact land use. Wild classification would place more contraints or restrictions on land use. Impacts to land use along wild rivers is tempered by the remoteness and low potential for a wide range of land use. Development of utilities such as highways, railroads, electrical transmission lines, sewer lines, and gas/oil lines may be restricted along the upper South Yuba River.	No immediate impact on land use or landownership. Should dams be constructed, land uses could be precluded or eliminated and private property condemned. Developers will acquire the necessary land to build dams and reservoirs. Blanket condemnation of private property, to build a dam and reservoir, exceeds a half mile river corridor.	Low to Moderate impacts on land uses. Little impact on future land uses because the rivers are classified as scenic and recreational. There may be some indirect impacts on harvesting timber on private land along the lower South Yuba River. Impacts to rivers not recommended discussed under Alternative B.	Moderate effects on land uses in general (See Alternative A). Potential conflicts along the lower Middle Yuba River where access crosses private land. Impacts to rivers not recommended discussed under Alternative B.	Low impacts on land uses and ownership because there is little development along the streams recommended. An exception is the upper South Yuba River where the river parallels an important transportation and utility corridor (See Alternative A discussion). Impacts to rivers not recommended discussed under Alternative B.	Low to moderate impacts on land use. Several recommended rivers are classified as wild which may limit land uses. Indirect impacts on private logging along Big and Little Granite Creek. Impacts to rivers not recommended discussed under Alternative B.

Consequence Summary Continued

Resource	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Forest Management	Moderate Impact on Forest management. Forest harvest volumes per acre would be reduced. The suitable Forest land base would not change except for rivers classified as wild. The timber in wild corridors would be removed from the Forest base. Timber activities in scenic and recreation corridors would be modified to protect the outstandingly remarkable resource values.	Present Forest management and harvesting would continue. All Forest lands suitable for forest management would continue to be suitable.	Low to moderate impact on Forest management. About 1500 acres of Reg.Class 1 timber within the Canyon Creek corridor would be effected. Harvesting in this area will be modified to protect the outstandingly remarkable resource values. This corridor is not currently managed for timber production due to inaccessibility and the high cost of building roads. Impacts to rivers not recommended discussed under Alternative B.	Moderate impacts on ASQ Canyon Creek, Middle Yuba River, and Downie River corridors have large number of acres of Reg. Class 1 timber. Designation would effectively remove this timber from the Forest timber base reducing timber harvest options in these corridors. Impacts to rivers not recommended discussed under Alternative B.	Low impacts on Forest management. Few acres along the recommended streams are suitable for Forest management. Minimal impacts on scheduled Forest harvest and management. Impacts to rivers not recommended discussed under Alternative B.	Moderate impacts on Forest management. Several recommended rivers have Reg.Class 1 timber within wild corridors that would be removed from the Forest timber base. There would be minimal effect on Forest management of the scenic and recreational rivers. Impacts to rivers not recommended discussed under Alternative B.
Mineral Resources	High potential impacts on current and future mining activities along wild rivers. Mining activities would be modified to protect rivers outstandingly remarkable resource values. Overall potential impacts on mining is greatest in this alternative because all rivers are recommended.	No immediate impacts on current and future mining operations. Should dams be constructed, current and future mining would be eliminated (claims would be inundated with water).	Light impacts on existing mineral resource development. Operators may be required to modify their activities to protect outstandingly remarkable resource values. Impacts for rivers not recommended are similar to Alternative B.	Impacts for rivers recommended are similar to Alternative A impacts, for those rivers not recommended, is similar to Alternative A. This alternative has the next most potential impact to mining after Alternative A because of the number and miles of rivers.	Slight impacts on existing mineral development. Rivers recommended have few mining activities along them with the exception of the N.F.N.F.A.R. Operators may be required to modify their activities to protect outstandingly remarkable resource values. Impacts to rivers not recommended discussed under Alternative B.	Impacts for rivers recommended are similar to Alternative A. A. Impacts to rivers not recommended discussed under Alternative B.

Summary of Environmental Consequences

Resource	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Recreation	No significant change in recreation. River-oriented *recreation opportunities* would be protected and emphasized. There could be some initial increase in recreational use along the most popular rivers and modest opportunities to promote tourism.	Free flowing river recreation opportunities may be reduced by developments. If dams are constructed recreation will shift to reservoir related activities. The recreation setting would change from Semi-primitive to Rural depending on the level of development that occurs around the reservoir.	The impacts would be similar to alternative A for those rivers designated and Alternative B for non designated rivers. Designation of the North and South Yuba Rivers could prompt modest increases in recreation and tourism.	Impacts for rivers recommended are similar to A except there would be an increased emphasis on recreation use, trail accessability, and interpretation of the older forest ecosystem *above the town of* Downieville. Over time the primitive setting along wild rivers would be emphasized. Impacts to rivers not recommended discussed under Alternative B.	Impacts for rivers recommended are similar to A with a emphasis of enhancing Semi-primitive Motorized activities along Fordyce Creek. Over time there would be a shift in *emphasizing the primitive* values along wild rivers. Impacts to rivers not recommended discussed under Alternative B.	Impacts for rivers recommended are similar to A. Impacts to rivers not recommended discussed under Alternative B.
Economics	Moderate impacts to mining and timber operations along wild rivers. No direct effect on utility operations. Future options for water development would be precluded. Increase in tourism would be moderate.	Economic activities would continue as present. There would be future opportunities for forest harvesting, mining, water development, and tourism under constraints already prescribed in the TLRMP. *Future dams could bring* in a new form of tourism and economic viability in the way of reservoir use.	Low to moderate impacts on mining and timber operations (see mining and timber). Options for building dams on the North and lower South Yuba Rivers would be precluded. For those rivers *not designated the impacts* would be similar to Alternative B.	Impacts for rivers recommended are similar to alternative A except there is potential for modest impacts on mining operations along wild rivers reducing revenue into the community. Modest in*creases in tourism may* occur with the development of old forest ecosystem interpretive opportunities above the town of Downieville. Impacts to rivers not recommended discussed under Alternative B.	Impacts for rivers recommended are similar to Alternative A. Tourism benefits would be slight in this alternative. Impacts to rivers not recommended discussed under Alternative B.	Impacts for rivers recommended are similar to Alternative A with the exception that both Fordyce Creek and Rubicon River segments have been modified to accommodate future improvements to the Spaulding and Hellhole Dams. Impacts to rivers not recommended discussed under Alternative B.

Summary of Environmental Consequences

Resource	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Visual Resources	Positive impact to visual resources as designation will provide additional protection to those outstandingly remarkable scenic values. VQO's would shift from Modification and Partial Retention to Retention and Preservation.	Potentially moderate impact to primitive river setting. The change would be from a moving river and associated canyons to flat water reservoir if a dam were constructed. Aesthetically both settings can be very attractive however the character is quite different.	Slight shift in visual quality with additional emphasis on visual protection. Impacts to those rivers not designated would be the same a Alternative B.	Impacts would be similar to Alternative A with an emphasis on maintaining high levels of scenic quality. VQOs would shift slightly from Modification and Partial Retention to Partial Retention and Retention. Impacts to rivers not recommended discussed under Alternative B.	Impacts for rivers recommended are similar to Alternative A. Impacts to rivers not recommended discussed under Alternative B.	Impacts for rivers recommended are similar to Alternative A although these rivers are less likely to have water projects developed along their banks. Impacts to rivers not recommended discussed under Alternative B.
Heritage Resources (Archaeology)	Positive impacts. Classification of a river as wild will provide the greatest protection of heritage values from project activities such as forest harvesting, development of utilities, or dams. There is potential for an increase in looting and vandalism of resource sites. Designation would provide an excellent spring board for interpretation of heritage resources.	Moderate to High negative impacts to heritage resource sites as currently there is no mechanism that protects heritage resource values from destruction either through project activity or illegal acts. There would be a long term potential to diminish heritage values along the rivers as a result of dam construction, looting, and vandalism.	Impacts for rivers not recommended are similar to Alternative A emphasizing that heritage values identified along Humbug Creek would be protected by precluding dams along the lower South Yuba River. Impacts for rivers recommended are similar to Alternative B.	Impacts for rivers recommended are similar to Alternative A however the lower South Yuba River is not recommended leaving the State and National Heritage resource values vulnerable to destruction. Impacts to rivers not recommended discussed under Alternative B.	Impacts for rivers recommended are similar to Alternative A for those rivers recommended. Impacts to rivers not recommended discussed under Alternative B.	Impacts to rivers recommended would be similar to Alternative A. Impacts to rivers not recommended discussed under Alternative B.

Summary of Environmental Consequences

Resource	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Botanical Resources	This alternative would allow for additional protection of known old growth areas and the Sugar Pine Point RNA. Sensitive and watchlist plant species may be impacted due to an increase of recreational use. Illegal plant collection and trampling are also potential impacts to these plants. The impact is tempered as the majority of the sensitive and watchlist plants grow in terrain that is steep and some distance from the rivers. Additional protection of the plants would be a positive impact.	This alternative would not allow for additional protection for known old growth areas and the Sugar Pine RNA. No action could potentially impact all of the known occurrences of sensitive and watchlist species. If dams were constructed, the known and potential plant habitat would be inundated with water destroying the plants. Forest management activities may also indirectly impact the plants over time.	Impacts for rivers recommended are similar to Alternative A only to a lesser degree as only three rivers are recommended. The impacts for those rivers not recommended would be similar to Alternative B.	Impacts for rivers recommended are similar to Alternative A but not to the same degree because fewer rivers are recommended in this Alternative. Impacts to rivers not recommended discussed under Alternative B.	Impacts for rivers recommended are similar to Alternative A only impacts to plants on those rivers designated would be to a lesser degree as there are only ten rivers. Impacts to rivers not recommended discussed under Alternative B.	Impacts to rivers recommended are similar to Alternative A. Impacts to rivers not recommended discussed under Alternative B.
Fisheries	Alternative A is positive for fisheries. Designation of all the proposed rivers would ensure that the rivers remain free flowing, and would contribute to maintaining the integrity of these aquatic habitats and their associated communities.	Heavy negative impact. A dam would create habitat islands eliminating aquatic habitat connectivity. Nutrient flows, food availability, and water temperatures could be negatively effected. Additionally a dam would create aquatic migration barriers. As timber and mining activities continue sediment loading will continue to be a negative impact on aquatic habitat (Alt. A provides a quarter mile stream buffer).	Impacts for rivers recommended are similar to Alternative A however this alternative does not include several streams that provide habitats for rare aquatic species. Impacts to streams not recommended would be similar to Alternative B.	The impacts are similar to Alternative A for those rivers recommended and Alternative B for rivers not recommended.	The impacts are similar to Alternative A, however the wild classification has been modified to scenic on three major rivers. This modification could impact aquatic habitats because management of a scenic river would not mitigate potential mining impacts to the same extent as wild. Additionally two creeks which support Lahontan cutthroat trout, are not protected under this alternative. Impacts to rivers not recommended discussed under Alternative B.	The impacts are similar to Alternative A for those rivers recommended. Impacts to rivers not recommended discussed under Alternative B.

Summary of Environmental Consequences

Resource	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Wildlife	Impacts are positive. Designation would protect the wildlife resource values and high biological diversity in the river corridors by limiting any further development and preventing the high likelihood of future water diversions. This alternative would provide additional protection for the ecosystem values above the town of Downieville, but it is felt these ecosystem values would be better protected as a SIA or RNA.	Moderate impacts to wildlife as current management activities will continue. Timber harvesting, mining, and grazing within the river corridors could adversely affect wildlife species, including TEPS, and/or their habitats as they occur within the river corridors. Another impact would be the potential to alter suitable wildlife habitat, increase habitat fragmentation, directly destroy habitat by water impoundments, and increase human-related disturbances.	An increase in management activities within the designated river corridors which may cause short term impacts. Other positive impacts related to designation are discussed under Alternative A. Impacts to rivers not designated are discussed under Alternative B.	An increase in management activities within the designated river corridors which may cause short term impacts. Other impacts related to designation are discussed under Alternative A. Impacts to rivers not designated are discussed under Alternative B. This alternative would provide additional protection for the ecosystem values above the town of Downieville, but it is felt these values would be better protected as a SIA or RNA.	An increase in management activities within the designated river corridors which may cause short term impacts. Other impacts related to designation are discussed under Alternative A. Impacts to rivers not designated are discussed under Alternative B.	An increase in management activities within the designated river corridors which may cause short term impacts. Other impacts related to designation are discussed under Alternative A. Impacts to rivers not designated are discussed under Alternative B.

CHAPTER I

PURPOSE AND NEED FOR ACTION

Background

The purpose of this study is to determine which river or rivers of the twenty-two eligible streams on the west side of the Sierra crest to recommend for inclusion in the Wild and Scenic River System. These streams are in and adjacent to the Tahoe National Forest on the west side of the Sierra crest.

The Wild and Scenic Rivers Act and Public Law 88-29 authorized the Nationwide Rivers Inventory (NRI), which was begun in the early 1970s by the United States Department of Interior (USDI) Heritage Conservation and Recreation Service (HCRS). The intent of the National Wild and Scenic River Act of 1968 (PL 452) is to preserve some of the Nation's free-flowing rivers for present and future generations.

In 1970 the Forest Service completed a Multiple Use Report on the North Fork American River. The analysis recommended that the North Fork American River be studied for possible inclusion into the National Wild and Scenic Rivers System. In 1978, Congress designated the North Fork of the American River as a Wild River. Subsequently, the North Fork American Wild River Management and Development Plan, 1979, was prepared for guiding the rivers management and development. Portions of the Middle Yuba River and South Yuba River were included in the HCRS (now a part of the National Park Service) Nationwide Rivers Inventory completed in 1981. An assessment of the eligibility of these rivers along with the Middle Fork American River, North Fork of the Middle Fork American River, Lavezzola Creek, and Canyon Creek was completed during the Forest planning process. During the public comment period for the final TLRMP, river conservation groups met with the TNF and argued that the Forest Wild and Scenic River inventory process was inadequate, did not consider a wide range of rivers, and did not follow Forest Service planning direction. Based on the information presented, the Forest agreed that it had not adequately followed Forest Service direction and agreed to conduct a new and more thorough eligibility inventory. The subsequent inventory was conducted and thirty rivers within and adjacent to the National Forest Boundaries were found eligible for study. These eligible rivers are in an interim protection status until such time as the suitability studies are completed and recommendations made.

Of the thirty eligible rivers, eight rivers on the east slope of the Sierra crest were studied separately; seven of these rivers were on the Tahoe National Forest (TNF) and one was on the Lake Tahoe Basin Management Unit. The East Side Wild and Scenic River Study was prepared concurrently with the Bureau of Reclamation, US Fish and Wildlife Service, the State of California Truckee River Operating

Agreement Study (TROA) and the Lake Tahoe Basin Management Unit. The DEIS was released in July of 1994. The Middle Fork of the American River was identified eligible by an inter-agency evaluation team led by the Bureau of Reclamation (BOR). The BOR will take the lead on the suitability study. The remaining twenty-two rivers on the west slope of the Sierra crest are discussed in this study.

Purpose and Need of Study

The purpose of this study is to determine the suitability of the twenty-two eligible streams and tributaries on the west side of the Sierra crest within and adjacent to the TNF for inclusion in the National Wild and Scenic Rivers System. A separate Suitability Study by the TNF is being conducted which analyzes eight eligible streams on the east side of the TNF.

This DEIS is related to the Final Environmental Impact Statement (FEIS) for the TLRMP, and the general actions are consistent with the direction contained within the TLRMP. This concept applies to the Eldorado and Plumas National Forest Land and Resource Management Plans where appropriate. In addition a plan amendment is required for those rivers recommended for designation to provide interim protection. The USDA Forest Service is the lead agency in conducting this environmental analysis and preparing the DEIS. The Bureau of Land management (BLM) is a cooperating agency for input on the South Yuba River.

Decisions to be Made

The decision to be made is to amend the Tahoe and Plumas National Forest Land and Resource Management Plans, as well as the Bureau of Land Management Sierra Planning Area Management Framework Plan (1988) specifically those land managed by the Folsom Resource Area within the Nevada City Area management area, by providing interim protection for rivers recommended for Congressional designation into the Wild and Scenic Rivers System. The plan amendment will provide protection for the outstandingly remarkable values and free-flowing characteristics of rivers recommended for designation.

The recommendation[s] to be made, based on the analysis in this document, are preliminary recommendations subject to further review by the Chief of the Forest Service and Director of the Bureau of Land Management and the Secretaries of Agriculture and Interior. The recommendations are non-binding at higher administrative levels and Congress.

Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act was passed in 1968 to balance water development with river protection:

" *The Congress declares that the established National policy of dam and other construction...needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital National conservation purposes.*"

To accomplish this goal, Congress created the National Wild and Scenic Rivers System:

" *It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in a free-flowing condition, and ... shall be protected for the benefit and enjoyment of present and future generations.*"

By the end of 1988, about 9,200 miles of rivers on 119 river segments had been included in the Wild and Scenic Rivers System (Coyle, 1988). Designation as a wild and scenic river does not mean that the river corridor, which generally includes the land within about 1/4 mile on either side of the river, is managed like a National Park or Wilderness. The management goal is to maintain the character of the river in its current state and protect or enhance specific resource values. **Land uses and developments on private lands within the river area which were in existence when the river was designated on National Forest System land will be permitted to continue. New land uses will be evaluated for their compatibility with the purposes of the Act. Federal water projects, including dams, are specifically prohibited.**

Study Process

The Wild and Scenic Rivers Act and Federal guidelines (47 CFR 454, September 7, 1982) specify the process used to study rivers for possible inclusion in the National Wild and Scenic Rivers System. This process has three components:

1. Eligibility study
2. Classification inventory
3. Suitability study

The purpose of the eligibility study is to determine if rivers meet the minimum requirements for addition to the National System. In order to be eligible, a river

segment must be free-flowing and possess one or more outstandingly remarkable values, such as scenic, recreational, geologic, fish, wildlife, historic, ecologic, or cultural resources.

The second component, classification inventory, determines whether eligible rivers should be classified as recreational, scenic, or wild. This determination is based on the level of development present in the river corridor. The eligibility study and classification analysis are described in Chapter III.

The third component, the suitability study, is designed to show the costs and benefits of actually designating eligible rivers. This is done through a comparison of alternative ways of managing the river corridor including at least one alternative which designates all eligible river segments and one alternative involving non-designation of all segments.

Suitability consideration includes the environmental consequences of each alternative and the manageability of the river if it is designated, including costs and the willingness of the counties and state to participate in river corridor management. Chapter IV (Affected Environment) and Chapter V (Environmental Consequences) constitutes the heart of the suitability analysis.

If Congress chooses to add rivers into the National Wild and Scenic Rivers System through legislation, a management plan would then be prepared by the Forest Service and Bureau of Land Management. The management plan would describe the final river corridor boundaries and provide a schedule and plan for implementing the preferred alternative specified in this Legislative Environmental Impact Statement (LEIS). The management plan would also address more details of what specific actions would take place and where.

As a part of this suitability study the Forests and Bureau of Land Mangement need to amend their Forest Plans and Mangement Framework Plans to provide interim protection for rivers recommended for Wild and Scenic River designation. In this document proposed wording is identified for the preferred alternative only. If the preferred alternative changes from draft to final, it is intended that the Plan Amendment would reflect these changes.

Public Involvement

The public involvement program consisted of five public workshops, meetings with the water agencies and Counties, mailings to interested parties, study newsletters, as well as informal meetings on request. Workshops were held in Foresthill, Auburn, Nevada City, Marysville, and Downieville. The attendance at these workshops was excellent. County officials, Congressional aides, landowners,

mining claimants, local residents, and others who had interest regarding river management attended the workshops.

In addition to the workshops and meetings, over 300 written comments were received. These comments included two petition sets (see Appendix A for cover of petition sets). The first petition was from the town of Downieville, population 200. There were 119 signatures on the petition. The second petition was from the Grass Valley area; it contained 1,151 signatures.

Approximately seventy-five percent of the written comments received at the beginning of the study were opposed to wild and scenic river designation based on the fear of condemnation of private property and mining issues. People who favored wild and scenic river designation were generally recreation-based or landowners along the river, who were concerned that their property would be inundated by water should a dam be built in the future.

The Study Team

A broad-based resource analysis team including a forester, archaeologist, botanist, fishery biologist, wildlife biologist, hydrologist, landscape architect, lands specialist, and recreation planner conducted both the eligibility and suitability analyses. The team worked together in an interdisciplinary process.

The team mailed out three wild and scenic river updates over the course of the study. The updates were designed to keep the public informed about the progress of the planning process. The updates were mailed to about 2,000 people, including landowners along the eligible rivers and interested publics (the third edition update is located in Appendix B.

CHAPTER II
ALTERNATIVES

Introduction

This study has developed and analyzed the suitability of 22 rivers in the National Wild and Scenic River System. Six alternatives were developed and analyzed. Under Alternative A, all the eligible rivers would be found suitable for designation and management would be similar to the standards described in Appendix C. Alternative B is the No Action Alternative. None of the eligible rivers would be recommended as suitable. Management under Alternative B would be in accordance with the existing local county plans for private lands, and land and resource management plans or land use plans on state and federal lands. The other alternatives range in the number of rivers and designate various combinations of the eligible rivers. Table II.1 lists which rivers were evaluated under each alternative and compares the number of miles of river by alternative. A half-mile-wide corridor, one-quarter-mile from each stream bank, was used to determine the study area. Table II-2 provides the number of acres for each river corridor by alternative.

River Miles by Alternative
Table II-1

RIVER	A	B	C	D	E	F
North Yuba River	45	0	45	45	0	0
Downie River	12	0	0	12	0	12
Empire Creek	9	0	0	9	0	9
Lavezzola Creek	15	0	0	15	0	15
Pauley Creek	15	0	0	15	0	15
Canyon Creek	30	0	30	30	0	0
New York Ravine	2	0	0	2	2	2
Middle Yuba River	39	0	0	39	0	0
Oregon Creek	4	0	0	0	4	4
East Fork Creek	4	0	0	0	4	4
Macklin Creek	2	0	0	0	0	2

Table II-1 (continued)

RIVER	A	B	C	D	E	F
Upper South Yuba River	20	0	0	0	20	0
Lower South Yuba River	39	0	39	0	0	0
Fordyce Creek	10	0	0	0	10	10
Humbug Creek	7	0	0	0	7	0
N.F.N.F.A.R.	6	0	0	6	6	6
Big Granite Creek	5	0	0	0	0	5
Little Granite Creek	2	0	0	0	0	2
New York Canyon	1	0	0	1	1	1
N.F.M.F.A.R.	16	0	0	16	16	16
Screwauger Canyon	3	0	0	3	0	3
Grouse Creek	1	0	0	1	1	1
Rubicon River	10	0	0	10	10	10
TOTAL MILES	297	0	114	204	81	117

River Acres by Alternative
Table II-2

RIVER	A	B	C	D	E	F
North Yuba River	14,228	0	14,228	14,228	0	0
Downie River	3,819	0	0	3,819	0	3,819
Empire Creek	2,757	0	0	2,757	0	2,757
Lavezzola Creek	4,273	0	0	4,273	0	0
Pauley Creek	4,103	0	0	4,103	0	4,103
Canyon Creek	8,945	0	8,945	8,945	0	0
New York Ravine	837	0	0	837	837	837
Middle Yuba River	12,924	0	0	12,924	0	0

Table II-2 (continued)

RIVER	A	B	C	D	E	F
Oregon Creek	1,249	0	0	0	1,249	1,249
East Fork Creek	1,384	0	0	0	0	0
Macklin Creek	767	0	0	0	0	767
Upper South Yuba River	6,077	0	0	0	6,077	0
Lower South Yuba River	12,609	0	12,494	0	0	0
Fordyce Creek	2,987	0	0	0	2,987	2,790
Humbug Creek	2,371	0	0	0	2,371	0
N.F.N.F.A.R.	1,522	0	0	1,522	1,522	1,522
Big Granite Creek	1,715	0	0	0	0	1,715
Little Granite Creek	816	0	0	0	0	816
New York Canyon	504	0	0	504	504	504
N.F.M.F.A.R.	4,789	0	0	4,789	4,789	4,789
Screwaugwer Canyon	783	0	0	783	0	783
Grouse Creek	543	0	0	543	543	543
Rubicon River	3,193	0	0	3,193	3,193	3,071
TOTAL ACRES	93,195	0	35,667	63,220	24,072	30,065

* Upper South Yuba River denotes segments above Spaulding Reservoir.
* Lower South Yuba River denotes segments below Spaulding Reservoir.

Development of Alternatives

The Wild and Scenic Rivers Act [section 4(a)] requires the consideration of a number of factors in evaluating the suitability of a rivers for inclusion in the National Wild and Scenic Rivers System. The factors which help to define the scope of the Draft Environmental Impact Statement (DEIS) /Study Report and include: (1) the current status of landownership, including the amount of private land within and adjacent to the study area;(2) the reasonably foreseeable uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the National Wild and Scenic Rivers System; (3) the values that may be foreclosed or diminished if the area is not protected as part of the system; (4) public, state, and local interest in the designation; (5) the cost of the area's acquisition and administration if it is added to the system; and (6) other issues and concerns raised during the public involvement phase of the study.

To respond to these issues regarding recommendations of suitability, the Forest Service Handbook (FSH) guidelines (FSH 1909.12) suggest consideration of the following types of alternatives: (1) national designation of all eligible segments; (2) protection of eligible segments by some means other than national designation (such as state designation); (3) non-designation of all or portions of the eligible segments; (4) designation of segments with alternative classifications; and (5) continuing current management (or no action).

Possible alternatives such as state designation and further segmenting the rivers were not considered because no interest was expressed during the public involvement phase of the study. The Forest Service considered all relevant issues raised by the public and interdisciplinary study team (IDT) during the scoping process to develop the alternatives. Key study issues were derived from the public involvement phase of the study.

Key Study Issues

Eight key study issues guided the development and evaluation of the alternatives. Many of these concerns were first identified by members of the public in issue-identification workshops held in the fall of 1992 and the summer of 1993. These issues were developed over the winter of 1993-94 at public meetings and one-on-one meetings with agencies and interested individuals.

Issue #1: Long-term protection or enhancement of important in-stream and *shoreline resources from water development.*

The adequacy of existing local, state, and federal regulations to provide long-term protection for in-stream and shoreline resources is a concern. While the rivers are now free-flowing, how will future pressures

affect the rivers, and will existing mechanisms be able to respond to these pressures? Of particular concern is the potential for hydroelectric development along the South Yuba River. Although there are no active plans for impounding the river to produce electricity, proposals have been made in the past, including two small hydroelectric projects proposed in the mid eighties entitled the Excelsior Ditch and Miners Tunnel. These proposed projects were between the Highway 49 bridge and the Edwards Crossing area.

Issue #2 **Long-term protection of existing water development facilities and the opportunity to develop future water projects as needs are identified.**

Nevada Irrigation District (NID), Yuba County Water Agency (YCWA), Placer County Water Agency (PCWA), and Pacific Gas and Electric (PG&E) all have multi-million dollar reservoirs and water delivery systems on, below, or adjacent to eligible streams being considered for designation (see Appendix E). These agencies, and the customers they supply, are concerned that a wild and scenic river designation may affect their management or delivery of water supplies in the future.

The agencies, and some local citizens, have expressed a strong concern that since designation precludes future water development then designation is not a wise choice. The main argument brought forward is the idea that future water needs are difficult to predict, and therefore, it is not wise to limit options. There are several aspects to this concern. The first point is that long-term water needs are almost impossible to predict because it is very hard to predict long-term population trends and other factors that result in water demand. The second point is that there is a high likelihood that future downstream environmental requirements for stream flows will add to future water demands. The third point is that there are also long-term flood control needs and designation may preclude options for flood control.

Issue #3 **Long-term protection or enhancement of important upland resources, including scenery, wildlife habitat, botanical resources, and geology.**

The lands within the Yuba, American, and Rubicon River drainages contain several outstanding values: scenery; wildlife habitat; botanical occurrences; and geologic features. The natural rugged character of these watersheds is highly valued.

Many landowners, recreationists, miners, and others who enjoy the river environment care deeply about river resources. Some, however, are concerned that threats to the river environment occur as these rural areas become more densely populated and water demands continue to increase. They feel that the natural values are subject to increasing stress and question the ability of existing regulations to respond in a way that will ensure the long-term protection of upland resources.

The future of the area's scenic values is of particular concern to naturalists, recreationists, and wildlife enthusiasts. They fear that the scenic values would be degraded by residential development, timber harvesting, water developments, or other land uses. Protection of scenery and the existing rugged character is important to many people. Many people have also acknowledged that it is beyond the scope of wild and scenic river designation to protect those areas outside of the quarter-mile river boundaries.

Issue #4: Protection of traditional resource uses, historic, and cultural sites.

All of the eligible rivers have played an integral part in a rich cultural past. The rivers have been important to the American Indian communities for fish and wildlife resources, cultural sites relating to Indian history and prehistory, and traditional-use values. The rivers have also been used to harness energy and wash gold out of the hills for nearly 150 years. There are historic and cultural sites scattered throughout the study area. These sites often have excellent integrity and merit further study and protection in the future.

Issue #5: Protection of public access, mining, and recreation opportunities.

The eligible rivers provide outstanding recreational activities including fishing, sightseeing, rafting, swimming, camping, hunting, and hiking. These activities are enhanced by the river corridors' natural appearance, outstanding scenery, fishery, and wildlife. There are several primitive recreation opportunities along some of the rivers as well. Recreational use on many of the rivers is low to moderate, excluding the North and South Yuba Rivers. Many landowners currently allow access to their land upon request, but there is no assurance that this will continue. Besides assured access, recreation visitors want appropriate facilities at key sites to maintain and enhance the recreation opportunities existing today.

Issue #6: The effects of designation and resource protection actions on private property rights and the economic viability of existing and future resource uses, including timber harvest and mining.

Residents of Nevada, Placer, El Dorado, Yuba, Plumas, and Sierra Counties value the rural character of the Yuba, American, and Rubicon drainages. These people, many of whom depend on forestry, mining, agriculture, and recreation/tourism for their livelihood, want this character to be maintained. Many believe, however, that this can be accomplished without new restrictions. They suggest that existing laws and regulations are adequate and that landowners are being good stewards of their lands. Landowners are concerned that wild and scenic river designation will restrict what they can and cannot do on their own property. The land ownership pattern along some of the river corridors is a checker board of private and public property that dates back to the railroad grants of 1862 and 1864. This checkerboard pattern is especially predominant along the South and Middle Yuba River drainages.

At the wild and scenic river workshops, many people asked who would be making decisions about river management, expressing concern that designation would lead to a loss of local control, with decisions being made in San Francisco and Washington D.C.

Specific concerns include landowner's ability to harvest timber, mine, subdivide, and / or develop property. Landowners also are concerned about the effects of increased public recreational use, including possible increases in fires, trespass, vandalism, and litter, as well as being forced into a enforcement role. Other concerns include possible economic effects of designation, such as changes in property values and property taxes. Many have said that their property taxes are already increasing, and fear that locals may be displaced by newcomers attracted into the area.

Some of the river corridors contain valuable timber. Many county residents and small businesses are concerned that wild and scenic designation will add another complication to an industry already embroiled in debate over old-growth forests and log exports. There is concern about the backlash which the industry may receive from the public if they cut within or adjacent to a wild and scenic river corridor. Landowners were especially concerned about the government's authority to condemn land for access or scenic easements.

Issue #7: County and State support for designation and their willingness to be involved in future river management.

The Wild and Scenic Rivers Act specifies that a study report must contain descriptions of the role that will be played by local and State government should the river be designated. This is a recognition that, particularly regarding rivers flowing through private lands, the federal government's management jurisdiction is limited. Several essential ingredients to successful river management are the jurisdiction of state or local government. For example, the state controls use of fish and wildlife resources and grants water use permits. Local government (which, in un-incorporated areas, means the county), has the authority for regulating land use, and the sheriff is responsible for public safety and search and rescue efforts.

The State of California will continue to have a key role in river corridor management through it's involvement in county shoreline regulations and water quality and quantity issues. The State has not issued a formal position regarding future management of any rivers or the role that they will wish to assume except.

Sierra, Nevada, and Placer County officials are concerned that designation includes condemnation authority on private lands, federal pressure on the counties to strengthen zoning, effects on traditional resource uses, the adequacy of compensation paid to private landowners, reduction in property tax receipts, and pressure on essential services, such as law enforcement and sanitation to service the river corridors.

The Sierra County Board of Supervisors has formally stated opposition to wild and scenic river designation within their county. Placer and Nevada Counties Board of Supervisors have formally decided to wait and see what the final recommendation will be before formally expressing a position.

Issue #8: *Cost and barriers to implementing required actions.*

Each of the alternatives, except Alternative B (no-action), assumes that the administrative actions and financial support needed to manage the rivers would be forthcoming. Beyond support for the concept of river management, a number of questions must be answered before the federal government, or other potential participants, would agree to participate in a successful management plan. Is the activity consistent with legal authority? Will costs be incurred and how will these be borne? Is staff available? Will this activity detract from other staff responsibilities? It is important to note that regardless of designation, the cost to manage the river corridors will slightly increase over time.

Alternatives Eliminated from Detailed Study

This section describes all of the alternatives that surfaced during the study process, but were not carried forward into the alternatives considered in detail. An overriding concern for the interdisciplinary team and management was to keep the alternatives to a small number so that clear comparisons and environmental consequences could be readily understood. Some elements of these alternatives not considered in detail were brought forward to the final alternatives as desired by the team and management. Because reference is made to the alternatives that are being considered in detail, readers may wish to read those first.

Recreation Alternative: Nine eligible rivers are recommended for wild, scenic, or recreational rivers. The rivers recommended are listed as follows:

Pauley Creek
Downie River
Lavezzola Creek
Empire Creek
East Fork Creek - SIA
North Yuba River
Oregon Creek
Upper South Yuba River
Lower South Yuba River

The emphasis of this alternative is to recommend rivers that provide an enhanced recreation experience for forest recreationists and provide some economic benefits from tourism for river communities. These rivers have outstandingly remarkable values for recreation or have attractions that would support recreation and tourism. This includes designating a Special Interest Area (SIA) around the falls near Weaver Lake on East Fork Creek.

This alternative was not considered in detail because:

1. The study team determined that alternatives A, C, and D adequately covered these issues. Additionally the geologic values and remote access suggested a SIA was not appropriate in the case of East Fork Creek.

Multiple Values Alternatives: Seven eligible rivers are recommended for wild, scenic, or recreational rivers. The rivers recommended are listed as follows:

Canyon Creek
Pauley Creek
North Yuba River
Middle Yuba River
N.F.M.F.A.R.
Lower South Yuba River
N.F.N.F.A.R.

The emphasis of this alternative is to recommend the rivers with the broadest outstandingly remarkable resource values. This alternative would also provide an emphasis on maintaining or enhancing primitive recreation values. Along the lower

South Yuba River the segment between the forest boundary and the town of Washington has been upgraded from scenic to wild to enhance the primitive recreation values.

This alternative was not considered in detail because:

1. The study team determined that Alternatives A and C encompass this alternative.

2. *This alternative does not incorporate any resource or public concerns about* conflicts with other users.

3. In regard to wild classification for the South Yuba River, rivers other than the South Yuba River already provide better wild river opportunities among the *twenty-two rivers under consideration.*

Gold Alternative: In this alternative nine eligible rivers are recommended for wild, scenic, or recreational rivers. The rivers in this alternative are as follows:

Macklin Creek	North Yuba River (above Sierra City)
New York Ravine	Big Granite Creek
Rubicon River	Little Granite Creek
Oregon Creek	New York Canyon
Upper South Yuba River	*Lavezzola Creek*

The emphasis of this alternative was to minimize impacts on mining operations by *recommending only those rivers or river segments with low-density mining activity.*

This alternative was not considered in detail because:

1. Several rivers were cut in half and did not make logical river segments.

2. The study team determined that Alternative B, C, and D adequately encompassed those rivers.

Resources and Mining Alternative: *In this alternative, 19 rivers are recommended* for wild, scenic, or recreational rivers. The rivers are listed as follows:

Canyon Creek - Scenic
Downie River - Scenic
Empire Creek - Scenic
Lavezzola Creek - Scenic
Middle Yuba River - Scenic
Fordyce Creek - -Scenic
Humbug Creek
N.F.M.F.A.R. - Scenic
New York Ravine
Macklin Creek
Pauley Creek - Scenic
East Fork Creek
Oregon Creek
Lower South Yuba River - Scenic
Upper South Yuba River
Big Granite Creek - Scenic
Little Granite Creek
New York Canyon - Scenic
Grouse Creek - Scenic
Screwauger Canyon
Rubicon River - Scenic

The classification along several rivers has been lowered from wild to scenic (see "Scenic" listing above). The emphasis of this alternative was to minimize management limitations on mining operations. This emphasis is achieved by reducing the classification of wild rivers to scenic rivers within the gold belt and listing other rivers outside of the gold belt with minimal mining activities.

This alternative was not considered in detail because:

1. The study team determined that this issue was better addressed under Alternatives C and D.

2. There was also concern that designating this many rivers was not truly responding to mining concerns.

Timber Alternative: In this alternative, ten rivers are recommended for wild, scenic, or recreational rivers. The rivers are listed as follows:

N.F.N.F.A.R.
Oregon Creek
Humbug Creek
Fordyce Creek - Rec
Upper South Yuba River
Rubicon River
New York Canyon
N.F.M.F.A.R.- Scenic
Grouse Creek
New York Ravine

The classification along Fordyce Creek has been lowered from scenic to recreation. Classification along the North Fork of the Middle Fork American River has also been lowered from wild to scenic. The emphasis of this alternative was to reduce impacts on timber management by recommending only those rivers where timber is not being actively managed within the potential designated corridors.

This alternative was not considered in detail because:

1. The study team determined that this issue was adequately addressed under Alternatives C and B.

2. The team also determined that the timber resource issues were not strong enough to warrant a separate alternative and should be included with other alternatives.

Private Lands Alternative: In this alternative, four eligible rivers are recommended for wild, scenic, or recreational rivers. The rivers recommended are listed as follows:

North Yuba River
Lower South Yuba River
Lavezzola Creek
North Fork of the Middle Fork American River

The emphasis of this alternative is to provide some of the best representative streams from the westside of the Forest while trying to minimize the impacts on resource outputs and perceived conflicts on private land.

This alternative was not considered in detail because:

1. The study team determined that alternative C is very similar to this alternative.

2. Other alternatives already include these rivers.

Dam Alternative; In this alternative, no rivers would be recommended. The purpose of this alternative was to keep future water development options open for all rivers by recommending no rivers.

1. This alternative was not considered in detail as worded but is encompassed in Alternative B. Alternative F responds to future water development concerns in a different way.

Historic Travelway Alternative: In this alternative, all rivers are recommended. The purpose of this alternative was to minimize management constraints on motorized jeep travelways. The classification along Fordyce Creek and Canyon Creek is modified from scenic to recreation.

This alternative was not considered in detail because:

1. The team determined that Alternative A already covers all of the rivers and the change from scenic to recreation for Fordyce Creek and Canyon Creek was not significant in terms of consequences.

Land Alternative: In this alternative, seventeen eligible rivers are recommended for wild, scenic, or recreational rivers. The rivers recommended include:

Canyon Creek	New York Canyon
N.F.M.F.A.R.	Downie River
Grouse Creek	Empire Creek
Screwauger Canyon	Lavezzola Creek
Rubicon River	New York Ravine
Humbug Creek	North Yuba River
Lower South Yuba River	Middle Yuba River
N.F.N.F.A.R.	Little Granite Creek
Pauley Creek	

The emphasis of this alternative is to minimize impacts on private property owners who are concerned that their land will be condemned in fee title by recommending only those rivers where there is a majority of public land (over 50 percent) within the quarter-mile river corridor.

This alternative was not considered in detail because:

1. The team determined that Alternatives B, C, and D covered several ways of responding to the private land issue. There also was a sense that emphasizing public ownership over 50 percent did not fully address the private land issues such as potential trespass, litter, and sanitation problems.

2. There was also a concern that recommending seventeen rivers would not be seen as a way to minimize impacts for private land compared to recommending fewer rivers, or fewer river miles in some alternatives.

Alternatives Considered in Detail

The objective and management direction for designation of one or more rivers include the following:

Designation forecloses possible impoundment of these rivers for water supply or other uses to maintain the river in a free-flowing condition. This prohibition would protect native and sensitive fish species which require free-flowing waters for their

survival and would prevent the inundation of federal or state-listed endangered, threatened, or sensitive plant species within the river corridors.

All rivers would be managed to the standards prescribed for the respective classification as described in Appendix A. Private landowners along the classified rivers would be encouraged to continue current land uses in order to preserve the existing atmosphere surrounding the rivers. Landowners are encouraged to use the standards in Appendix A to guide future land uses and developments. Timber harvest on private lands is guided by the regulations developed to implement the California Forest Practices Act. Wild and Scenic River corridors (200 feet on each side of the river) are considered "Special Treatment Areas" under the regulations. The intent of this determination is to manage the 200-foot corridor in a manner that is compatible with the purpose for establishing the Special Treatment Area. The regulations do not prohibit the harvest of timber within the area, but require modified practices to protect the wild and scenic river values within the corridor.

All alternatives except Alternative B would amend the Tahoe and Plumas National Forest Land and Resource Management Plans and Folsom Area "resource plan" to provide interim protection of rivers recommended for wild and scenic river designation. Specific language for the interim protection is given under Alternative C, as an example. The language is based on direction in the Land and Resource Management Planning Handbook, Chapter 8.

Ongoing regular uses of private lands, particularly those existing at the time that a river is designated, are not directly affected. Landowners are encouraged to maintain the existing environment along the river corridors, on private lands, under every action alternative evaluated in this study.

All alternatives, except Alternative B, would amend National Forest Land and Resource Management Plans and the BLM Management Framework Plan to provide interim protection of rivers recommended for wild and scenic river designation. An example of the specific language for the interim protection, is given under Alternative C.

Alternative A: Recommend designating all twenty-two rivers.

In Alternative A, each of the 22 rivers (a total of approximately 298 miles) are recommended for designation as wild, scenic, or recreational into the National Wild and Scenic River System (see Alternative A map on page II-18). This would protect all of the eligible rivers and their outstandingly remarkable values. It forecloses impoundment of these rivers for water supply or other uses. Native and sensitive aquatic species which require free-flowing water for their survival would be protected. Sensitive plant species and habitat for threatened, endangered, and sensitive wildlife species within the rivers corridors would also be protected. All of the

inventoried river classifications would be represented under this alternative. If this alternative was chosen as the preferred alternative, Forest Plan standards and guidelines, land allocations, and or management direction would be changed through a forest plan amendment.

Alternative B: Recommend no rivers (no-action)

This alternative describes the existing situation and proposes to continue existing management practices. The outstandingly remarkable values would be protected and maintained under management requirements of the Tahoe National Forest Land and Resource Management Plan (TLRMP). No new programs or special designation would be created.

Resources in the study corridor on private lands are affected by a variety of county, state, and federal activities. On National Forest System lands, standards have been set to protect vegetation, wildlife, and visual quality, as well as providing opportunities for recreation. The principal federal laws, policies, and programs protecting river corridor resources are described in Chapter V of the TLRMP under Standards and Guidelines and Management Direction. Water quality and quantity are regulated according to California State law. Hydroelectric power development is allowed under federal and state procedural requirements. If this alternative was chosen as the preferred alternative, Forest Plan standards and guidelines, land allocations, and or management direction would be changed through a forest plan amendment.

Alternative C: Recommend designating three rivers (Preferred Alternative)

Three rivers are recommended for scenic or recreational designation for a total of 114 miles. These rivers include Bureau of Land Management (BLM) land, and State Park land. The rivers recommended are listed as follows:

Canyon Creek (Scenic)	TNF & PNF
North Yuba River (Recreation and Scenic)	TNF & PNF
Lower South Yuba River (Recreation, and Scenic)	TNF & BLM State Parks

In this alternative the inventoried classification of wild for all the streams was lowered to scenic. Additionally, the upper-most segment of the Lower South Yuba River was modified. The part above Langs Crossing is deleted and the remainder of the segment was changed to a scenic classification. The one-thousand feet, upstream from the bridge at Langs Crossing, has been eliminated for more logical management with an easily identified starting point.

The emphasis of this alternative is to protect and promote public appreciation of the unique ecological, recreational, scenic, fisheries, and heritage values on the North Yuba River, Canyon Creek, and the lower South Yuba River, which are considered to be the best rivers to recommend to Congress. All twenty-two of the rivers evaluated have been determined to have outstandingly remarkable values so the three rivers recommended in this alternative are thought to make the most significant contributions to a National Wild and Scenic River System. At the same time this alternative would minimize impacts to mining, resource outputs, and private land concerns because of the number of rivers recommended and the classification along Canyon Creek, lower South Yuba River, and the North Yuba River was was lowered from wild to scenic.

As part of the Preferred Alternative, Alternative C amends the Forest Plan and BLM's Sierra Planning Area Management Framework Plan (1988) to provide interim protection for the recommended rivers until Congress takes legislative action on these rivers. The Forest Service Land and Resource Management Planning Handbook, Chapter 8, provides the interim protection standards for wild, scenic, and recreational rivers (see Appendix A). The Tahoe and Plumas National Forest Land and Resource Management Plans and Bureau of Land Management's, Sierra Planning Area Management Framework Plan (1988) will be amended to provide interim protection of the three rivers until Congress denies or approves designation as follows:

1. To the extent the Forest Service and Bureau of Land Management are authorized under law to control stream impoundments and diversions, the free-flowing characteristics of the North Yuba River, Canyon Creek, and the lower South Yuba River cannot be modified

2. Outstandingly remarkable values for the North Yuba River, Canyon Creek, and the lower South Yuba River shall be protected, and or enhanced, to the extent practicable.

3. Control management and development of Public lands on the North Yuba River, Canyon Creek, and the lower South Yuba River and its 1/2-mile corridor. Protect these corridors from modification to the degree that eligibility and classification would be affected based on the inventory classification.

This direction will be added to the goals and desired conditions of the Forest Plan as an additional element for wild and scenic rivers. In addition, there will be specific language in each appropriate management area under resource management emphasis that provides for interim protection of each river recommended.

The recommended wording is: Provide interim wild and scenic river protection for Canyon Creek, North Yuba River, and lower South Yuba River according to Forest Service Handbook direction and the direction provided in the Goals and desired

future condition section of this Forest Plan. This wording will be applied to Management Area (MA) 004 Sunnyside, MA 006 Canyon Creek on the Tahoe National Forest and MA 011 Challenge, MA 017 Poverty and MA 016 Beartrap on the Plumas National Forest for Canyon Creek. This wording would be applied to Management Area 013 Forty Niner, MA 022 Goodyears Bar, and MA 023 Pendola on the Tahoe National Forest and MA 011 Challenge on the Plumas National Forest for the North Yuba River. The above wording would be applied to Management Area 042 South Yuba for the lower South Yuba River. The above wording would also be applied to BLM's Nevada City Management Area, Sierra Planning Area MFP, as per BLM's Wild and Scenic River policy and guidance. Outstandingly Remarkable values identified for these rivers in the eligibility determination process and documented in this study will be applied to the rivers in this preferred alternative.

Alternative D: Recommends designating fourteen rivers.

Fourteen eligible rivers are recommended for wild, scenic, or recreational rivers for a total of 204 miles. The rivers recommended are listed as follows:

Canyon Creek - Scenic	New York Canyon
N.F.M.F.A.R. - Scenic	Downie River - Scenic
Grouse Creek	Empire Creek - Scenic
Screwauger Canyon Scenic	Lavezzola Creek - Scenic
Rubicon River	New York Ravine
North Yuba River - Scenic	N.F.N.F.A.R. - Scenic
Middle Yuba River - Scenic	Pauley Creek

Several rivers classification has been lowered from wild to scenic (see those rivers listed as "Scenic" in the above chart. In this alternative the inventoried classification of wild along nine streams has been lowered to scenic (see "Scenic" listed after river name in the above listing of rivers). The emphasis of this alternative is to recommend a broad range of rivers and provide a group of rivers with strong ecological values supporting old-growth forest habitat. This alternative minimizes impacts on private land owners and mining claimants who are concerned that there would be increased vandalism, littering, camping, trespassing, and condemnation for access on private land should wild and scenic river designation take place. The rivers recommended are those rivers where there is a majority of public land within the river corridor. Additionally, the inventoried classification of wild has been dropped to scenic in response to mining concerns.

If this alternative was chosen as the preferred alternative, Forest Plan standards and guidelines, land allocations, and or management direction would be changed through a forest plan amendment.

Alternative E: Recommends designating ten rivers.

Ten eligible rivers are recommended for wild, scenic, or recreational rivers for a total of 81 miles. The rivers recommended are as follows:

N.F.N.F.A.R.	South Yuba River (Upper Segment)
Oregon Creek	New York Canyon
Humbug Creek	N.F.M.F.A.R.- Scenic
Fordyce Creek - Recreation	Grouse Creek
Rubicon River	New York Ravine

The inventoried classification of scenic has been lowered to recreation on Fordyce Creek. The classification for the North Fork of the Middle Fork American River has also been lower from wild to scenic. The emphasis of this alternative is to recommend several rivers with a wide variety of specific outstandingly remarkable resource values. This alternative is designed to minimize impacts on the production of wood and mineral commodities by recommending only those rivers for designation, which would have a negligible effect on mining or timber operations.

If this alternative was chosen as the preferred alternative, Forest Plan standards and guidelines, land allocations, and or management direction would be changed through a forest plan amendment.

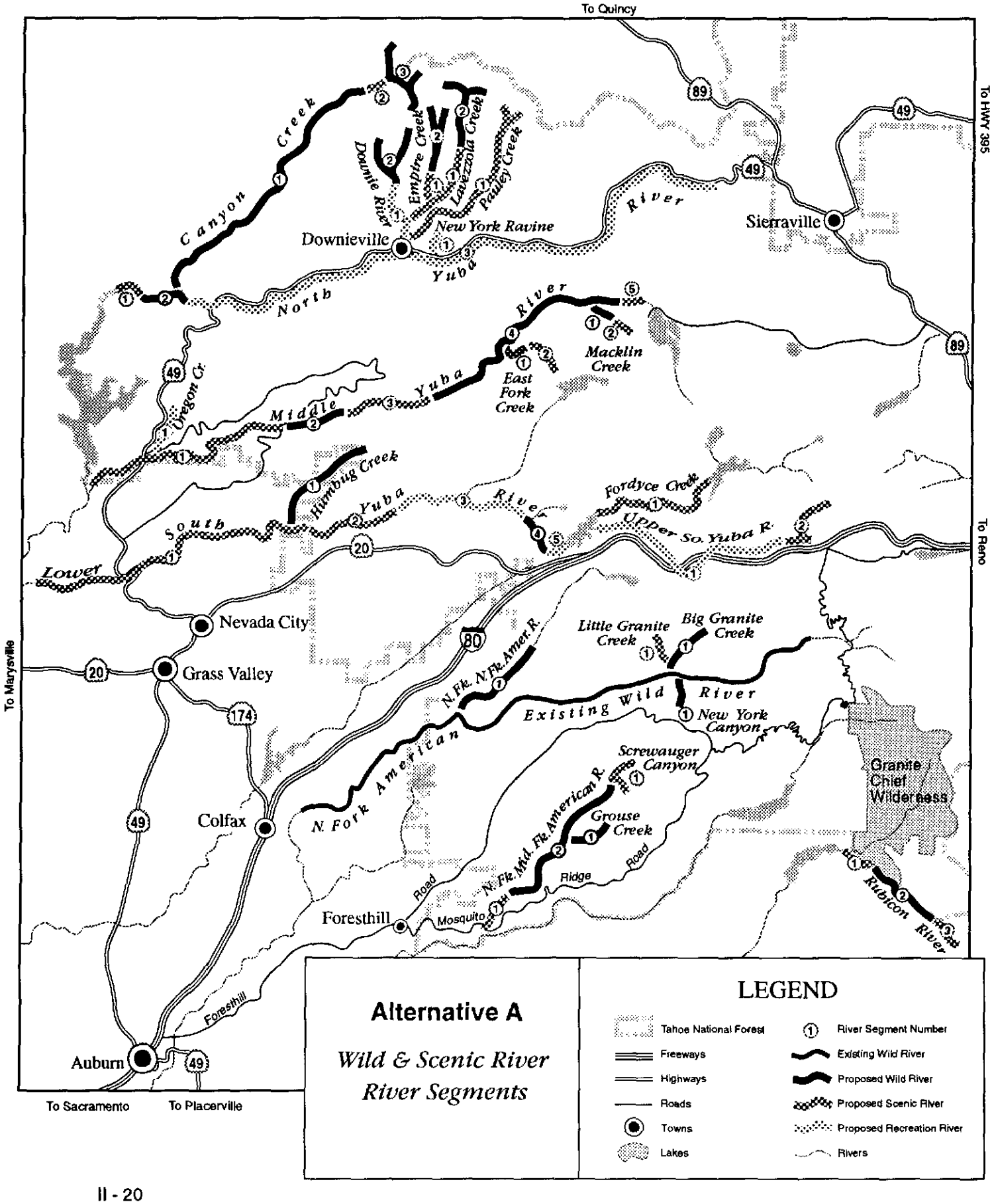
Alternative F: Recommends designating fifteen rivers.

Fifteen eligible rivers are recommended for wild, scenic, or recreational rivers for a total of 117 miles. The rivers recommended are listed as follows:

Downie River	Little Granite Creek
Empire Creek	New York Canyon
New York Ravine	N.F.M.F.A.R.
Macklin Creek	Grouse Creek
Screwauger Canyon	Fordyce Creek - Shortened Segment
Oregon Creek	Rubicon River - Shortened Segment
Big Granite Creek	Pauley Creek
N.F.N.F.A.R.	

The lower segment of both Fordyce Creek and the Rubicon River have been shortened to accommodate water level changes in the downstream reservoirs. The emphasis of this alternative is to recommend a broad range of rivers which minimize impacts on existing and potential future water projects should designation take place. Only those rivers where there are no current or proposed water projects are included.

If this alternative was chosen as the preferred alternative, Forest Plan standards and guidelines, land allocations, and or management direction would be changed through a forest plan amendment.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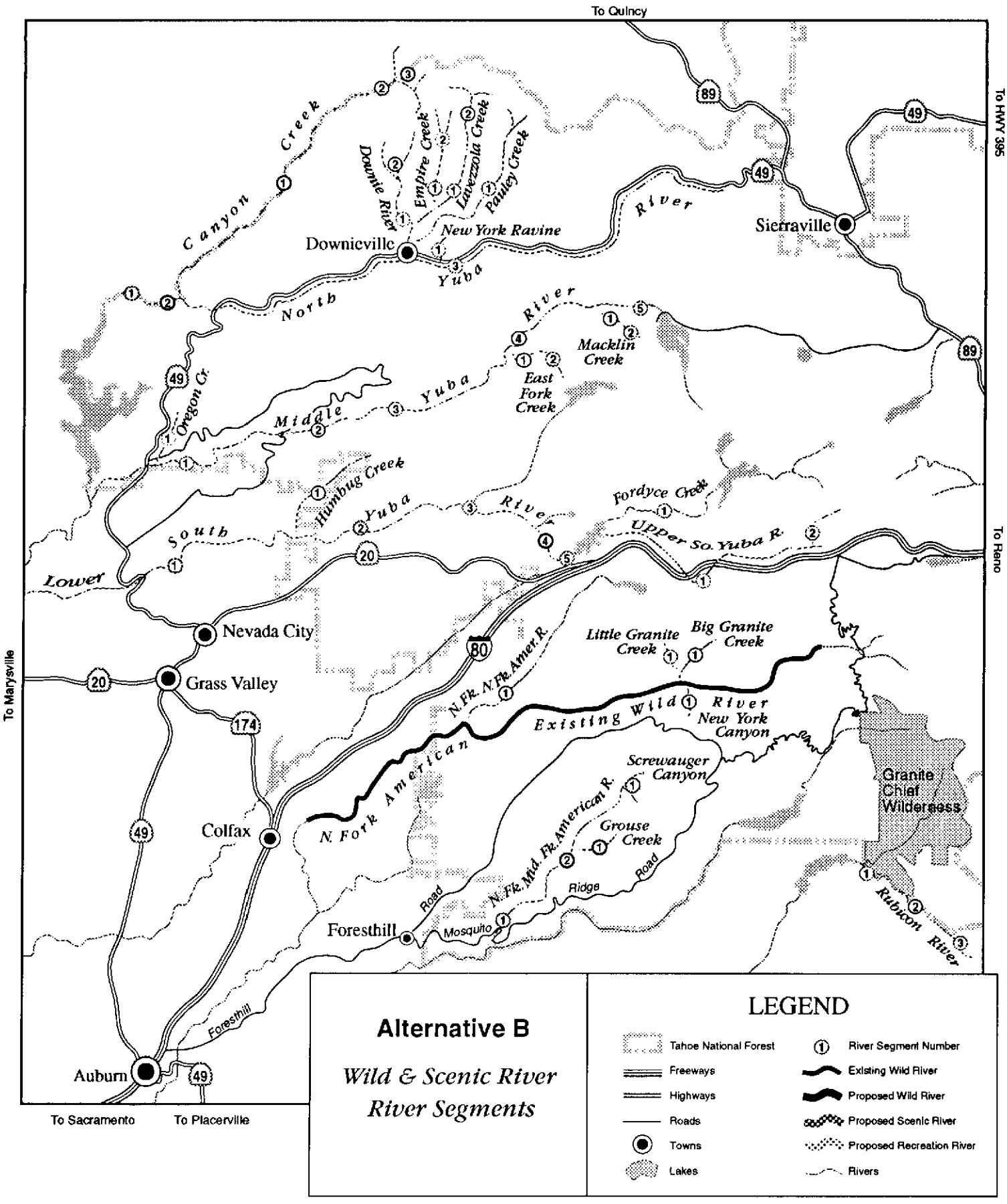
To HWY 395
To Reno
To Marysville
To Sacramento
To Placerville
Canyon Creek
Downie River
Empire Creek
Lavezzola Creek
Pauley Creek
New York Ravine
Downieville
Yuba River
North Yuba River
Sierraville
Oregon Cr.
Middle Yuba River
East Fork Creek
Macklin Creek
Humbug Creek
South Yuba River
Fordyce Creek
Upper So. Yuba R.
Lower South Yuba River
Nevada City
Grass Valley
Little Granite Creek
Big Granite Creek
N. Fk. N. Fk. Amer. R.
Existing Wild River
New York Canyon
Screwauger Canyon
N. Fork American
N. Fk. Mid. Fk. American R.
Grouse Creek
Granite Chief Wilderness
Colfax
Foresthill Road
Mosquito Ridge Road
Foresthill
Rubicon River
Auburn
Alternative A
Wild & Scenic River
River Segments
LEGEND
Tahoe National Forest
Freeways
Highways
Roads
Towns
Lakes
River Segment Number
Existing Wild River
Proposed Wild River
Proposed Scenic River
Proposed Recreation River
Rivers

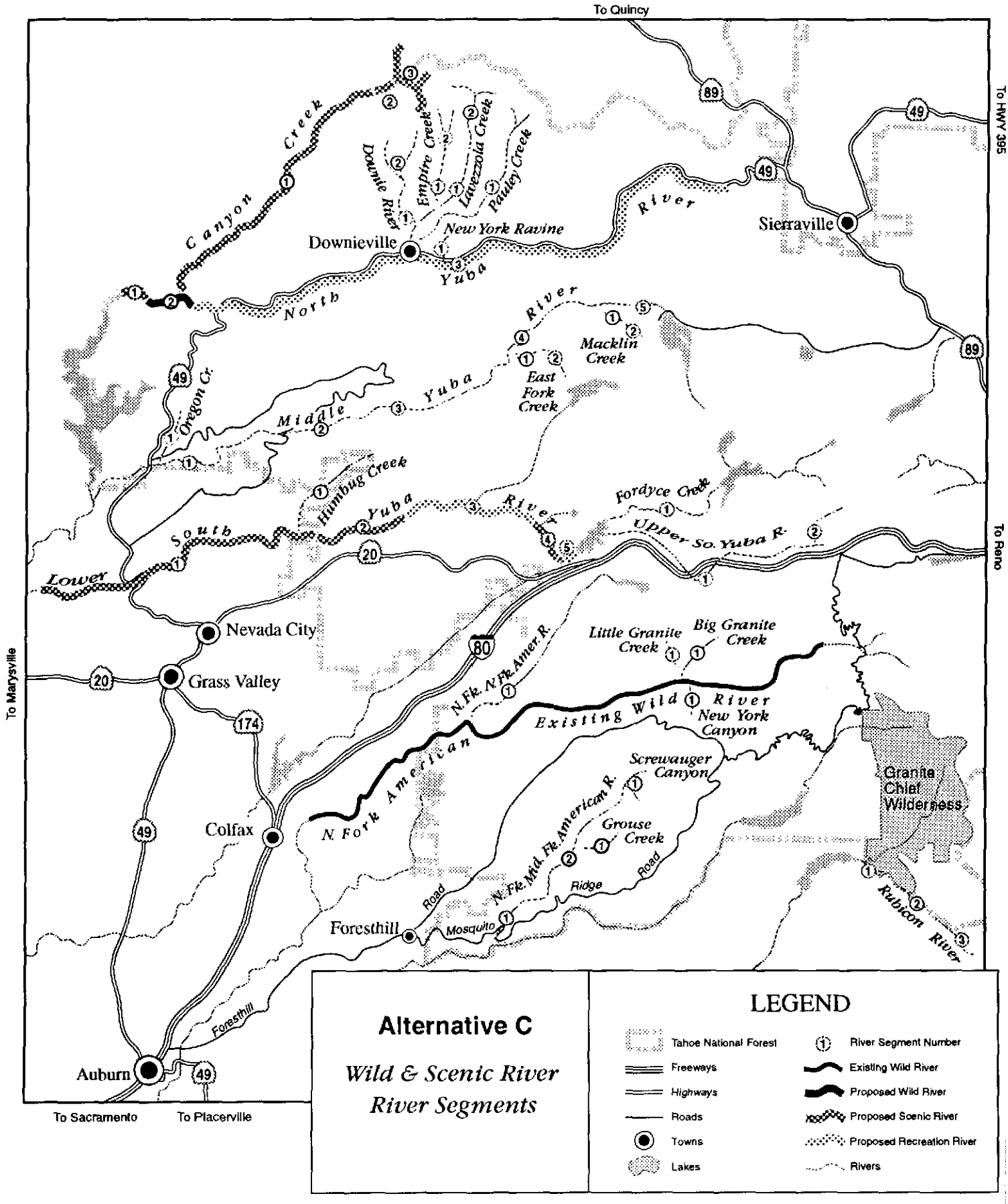


Alternative B

Wild & Scenic River River Segments

LEGEND

- Tahoe National Forest
- Freeways
- Highways
- Roads
- Towns
- Lakes
- River Segment Number
- Existing Wild River
- Proposed Wild River
- Proposed Scenic River
- Proposed Recreation River
- Rivers

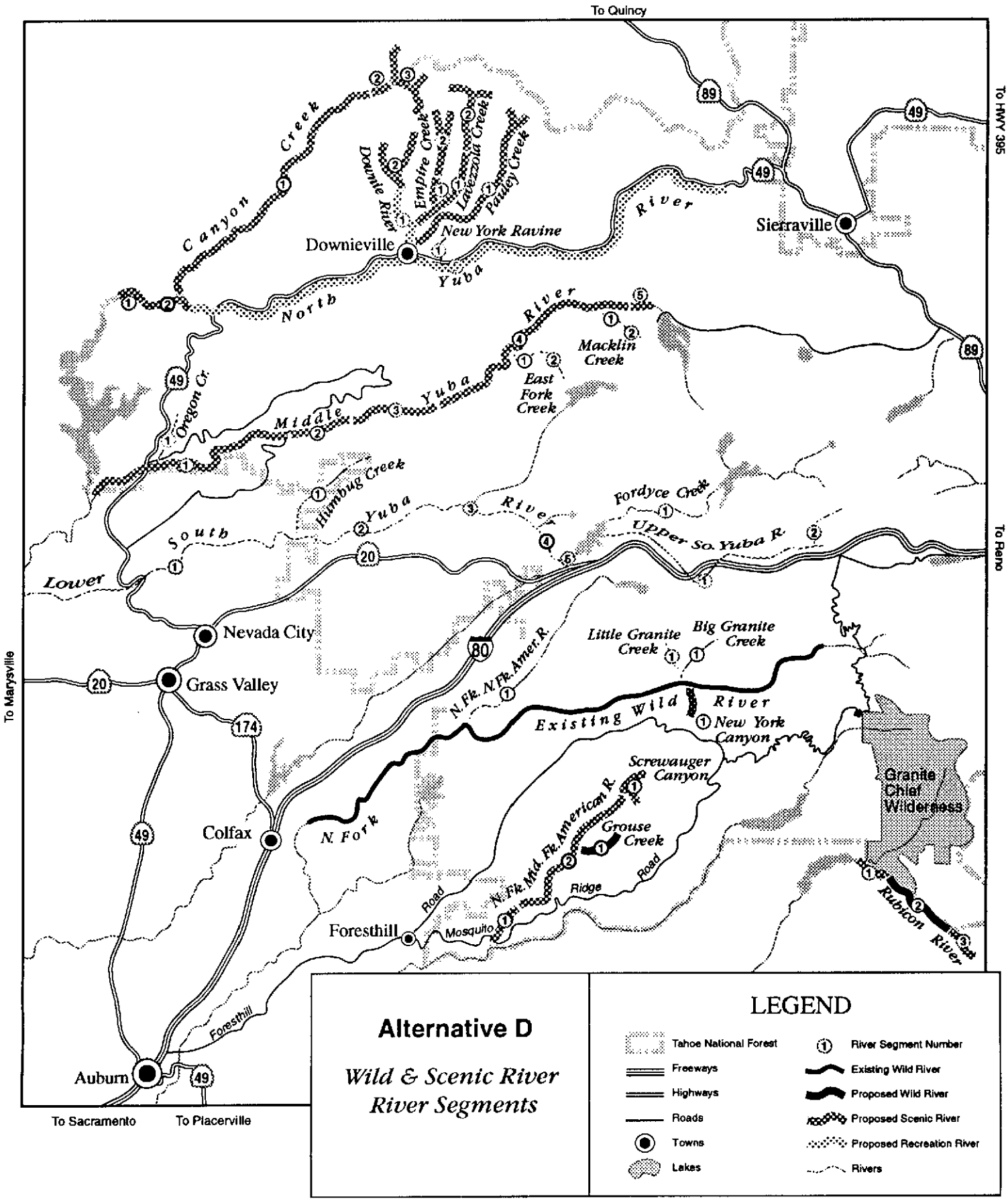


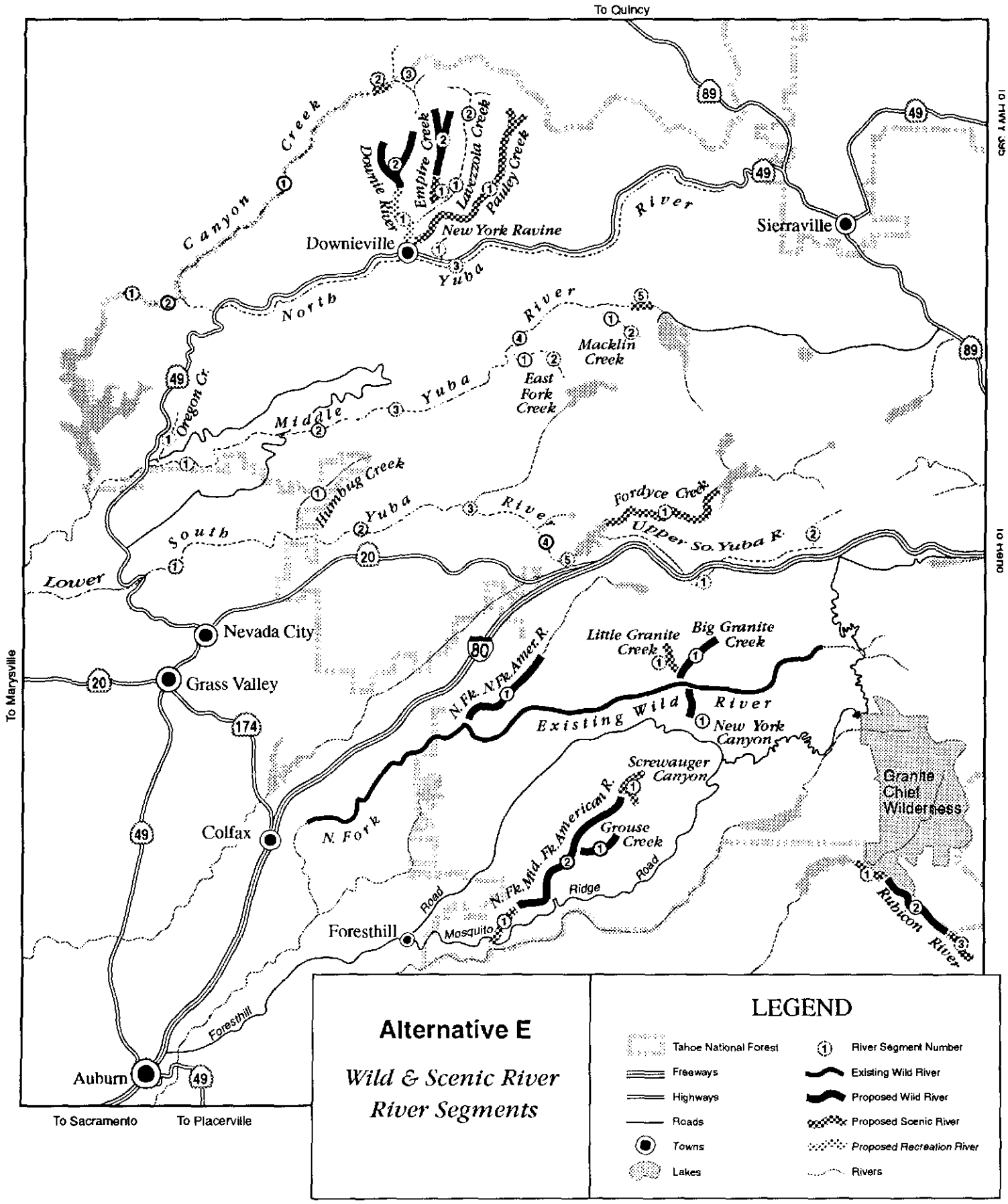
Alternative C

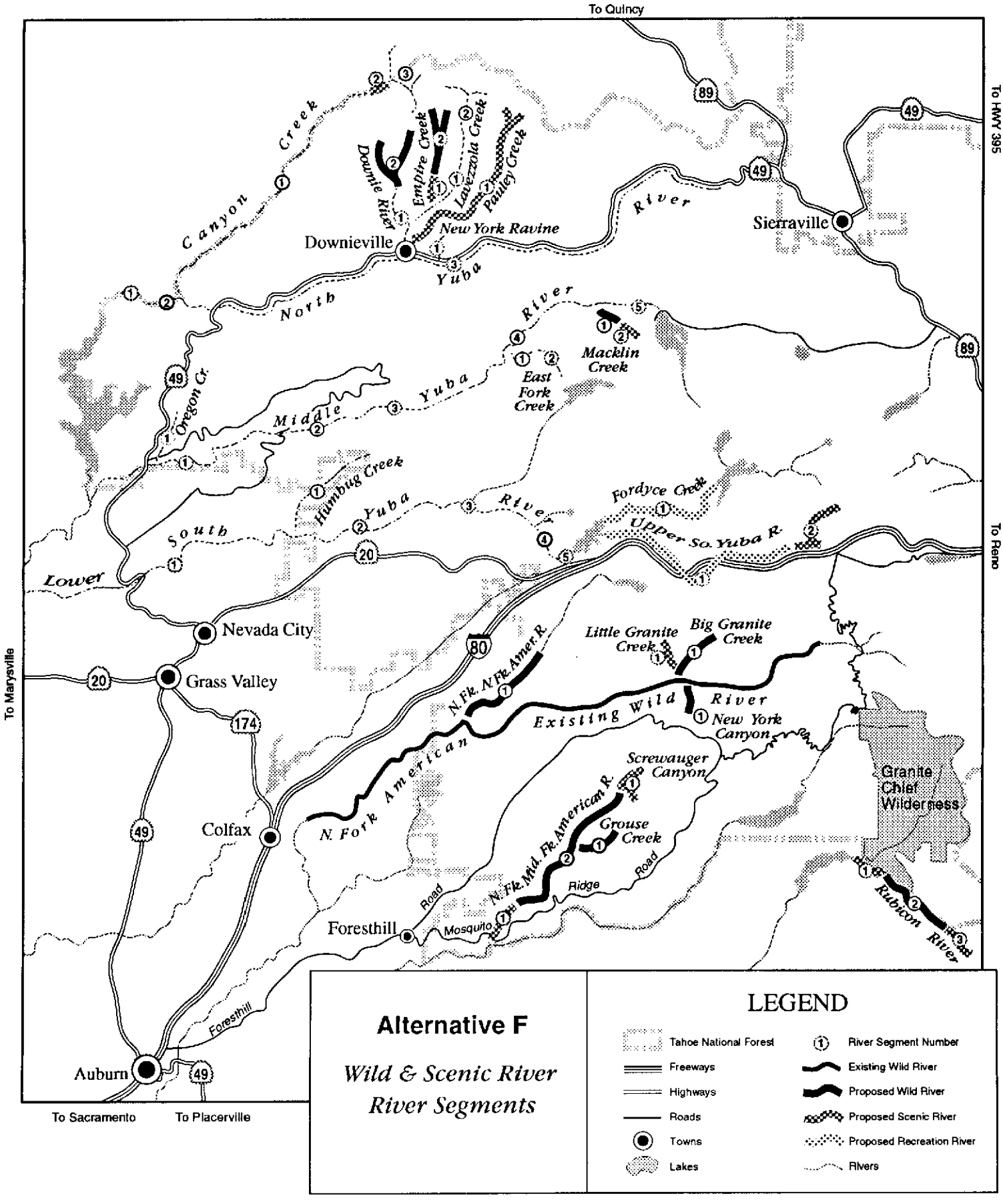
Wild & Scenic River River Segments

LEGEND

- Tahoe National Forest
- Freeways
- Highways
- Roads
- Towns
- Lakes
- River Segment Number
- Existing Wild River
- Proposed Wild River
- Proposed Scenic River
- Proposed Recreation River
- Rivers


To Quincy
To HWY 395
To Reno
To Marysville
To Sacramento
To Placerville
Downieville
Sierraville
Nevada City
Grass Valley
Colfax
Auburn
Foresthill
Canyon Creek
Downie River
Empire Creek
Lavezzola Creek
Pauley Creek
New York Ravine
Yuba River
North Yuba River
Middle Yuba River
South Yuba River
Lower Yuba River
Oregon Cr.
Macklin Creek
East Fork Creek
Humbug Creek
Fordyce Creek
Upper So. Yuba R.
Little Granite Creek
Big Granite Creek
N. Fk. N. Fk. Amer. R.
Existing Wild River
New York Canyon
Screwauger Canyon
N. Fk. Mid. Fk. American R.
Grouse Creek
N. Fork
Granite Chief Wilderness
Rubicon River
Mosquito Ridge Road
Foresthill Road
Alternative D
Wild & Scenic River
River Segments
LEGEND
Tahoe National Forest
Freeways
Highways
Roads
Towns
Lakes
River Segment Number
Existing Wild River
Proposed Wild River
Proposed Scenic River
Proposed Recreation River
Rivers


To Quincy
To Marysville
To Sacramento
To Placerville
To Hwy 395
To Hwy 80
Downieville
Sierraville
Nevada City
Grass Valley
Colfax
Auburn
Foresthill
Canyon Creek
Downie River
Empire Creek
Lavezzola Creek
Pauley Creek
New York Ravine
North Yuba River
Middle Yuba River
South Yuba River
Lower South Yuba River
Upper So. Yuba R.
Oregon Cr.
Humbug Creek
Fordyce Creek
Macklin Creek
East Fork Creek
Little Granite Creek
Big Granite Creek
N. Fk. N. Fk. Amer. R.
Existing Wild River
New York Canyon
Screwauger Canyon
N. Fork
N. Fk. Mid. Fk. American R.
Grouse Creek
Ridge Road
Masquito Road
Rubicon River
Granite Chief Wilderness
Foresthill
89
49
20
80
174
Alternative E
Wild & Scenic River
River Segments
LEGEND
Tahoe National Forest
Freeways
Highways
Roads
Towns
Lakes
River Segment Number
Existing Wild River
Proposed Wild River
Proposed Scenic River
Proposed Recreation River
Rivers



Alternative F

Wild & Scenic River River Segments

LEGEND

- Tahoe National Forest
- Freeways
- Highways
- Roads
- Towns
- Lakes
- River Segment Number
- Existing Wild River
- Proposed Wild River
- Proposed Scenic River
- Proposed Recreation River
- Rivers

CHAPTER III
ELIGIBILITY AND CLASSIFICATION

The Eligibility Process

This chapter presents the methods and results of the eligibility and classification analyses. While included as a separate Chapter, much of the following information on eligibility can be found as part of the affected environment described in Chapter IV. This eligibility information is the driving force for whether a river should be considered suitable and what contribution it may make to the National System of Wild and Scenic Rivers.

The purpose of the eligibility study was to determine whether the Tahoe National Forest (TNF) rivers and their associated corridors meet the standards for possible addition to the National Wild and Scenic Rivers System. The Wild and Scenic Rivers Act specifies that in order to be eligible, a river must have two characteristics: it must be free-flowing; and it must possess one or more outstandingly remarkable resource values. These resources include, but are not limited to, scenery, fish and wildlife, vegetation, recreation, geology, hydrology, historic and cultural sites, and ecology. Among all of the river resources, a goal of the inventory process was to see which of these, if any, were outstanding.

A finding that a river is eligible for designation does not automatically lead to a recommendation of whether a river should or should not be added to the system. The eligibility consideration simply determines whether the river should be carried into the suitability phase of the study. This chapter discusses the free-flowing character of the eligible rivers, the methods and results of the process used to identify outstandingly remarkable river values, and the findings for eligibility, including classification for the eligible rivers. River segments found eligible were classified as either wild, scenic, or recreational. Classification is based on the level of development present in the river corridor.

Free-flowing Character

The Wild and Scenic Rivers Act (Section 15b) defines free-flowing as:

...existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. The existence, however, of low dams, diversion works, and other minor structures...shall not automatically bar its consideration for inclusion: Provided, That this shall not be construed to authorize, intend, or encourage future construction of such structures within components of the national wild and scenic rivers system.

The United States Department of Agriculture (USDA) and United States Department of Interior (USDI) Final Revised Guidelines for Eligibility, Classification, and Management of River Areas (47 CFR 39454; September 7, 1982) indicate that a river segment flowing between impoundments is not necessarily precluded from designation if it meets eligibility criteria. There are several small improvements along the eligible rivers including retaining walls, rip rap, a diversion on the Middle Yuba River, and other minor structures such as bridge abutments. None of these developments significantly affect the free-flowing characteristics of the streams.

These same guidelines address flow requirements with the following direction:

"*There are no specific requirements concerning the length or the flow of an eligible river segment. A river segment is of sufficient length if, when managed as a wild, scenic, or recreational river area, the outstandingly remarkable values are protected. Flows are sufficient if they sustain or complement the outstandingly remarkable values for which the river would be designated.*"

Interdisciplinary team deliberations focused on the issues of free-flowing. Several creeks were identified as not eligible because they were not considered free-flowing. The Middle Yuba River and Lower South Yuba River were discussed in detail because the flows from the upper drainages are diverted. Of particular concern was the fact that most of the flows from the upper drainages were diverted into Nevada Irrigation District (NID) canals. Ninety percent of the normal flows of the South Yuba River drainage volume is diverted. After extensive discussion the team determined both rivers free-flowing based on the guidelines in the Federal Register 1982 cited in the previous paragraph.

Resource Analysis Methods

The objective of this analysis was to identify outstandingly remarkable river resources located within the Tahoe National Forest (TNF). The Wild and Scenic Rivers Act and federal agency guidelines do not specify how this determination should be made, only that it should be based on professional judgement.

For this study, outstanding resources were defined as resources that are either unique or exemplary from a regional or national standpoint. A resource would be at least regionally significant in order to consider a river eligible for designation. The west side of the California Sierra Nevada mountains was used as a benchmark for the study. To be unique, a resource or combination of resources would be one-of-a-kind. To be exemplary, a resource would be one of the better examples of that type of resource.

Each resource specialist systematically reviewed all of the streams on the Forest and identified those streams that have special resource values. The stream lists were then reviewed by a team of resource specialists. Resource values targeted for specific study within the Forest were fisheries, wildlife, botanical, ecological assemblages, scenic, hydrologic, geologic, cultural, and recreational. Additionally, a list of rivers with special values was solicited from Ranger District staff and from river-interest groups.

These resource values were studied in greater detail. Resource values were organized by local, regional, or national significance. Indicators for each resource were used to make the comparisons between potentially eligible rivers and rivers in the Sierra Nevada region.

The Sierra Nevada region selected for comparative analyses included the Plumas, Stanislaus, Tahoe, Eldorado, and Sierra National Forests. All of the eligible and existing wild and scenic rivers on the western slope of the Sierra Nevada were considered. In some instances the region of consideration varied based on the range of the particular resource.

Habitat for threatened/endangered/sensitive wildlife and plant species was analyzed for known species detections (wildlife) and the presence of suitable habitat (plants). Heritage resources listed on State or Federal Historic Registers or known to be unique were assumed to have at least regional significance. A comprehensive regional comparison of rare plants or vegetation communities was not undertaken due to lack of regionally consistent data.

River Resources and Classification

The following table, III-1, summarizes the outstandingly remarkable resource values identified for the eligible rivers. Full documentation for these findings is provided in a series of resource evaluation reports located in Appendix D. These include individual reports by river that define the river resources and summarizes the remarkable resource values and classification findings.

TAHOE NATIONAL FOREST WILD AND SCENIC RIVERS
ELIGIBILITY LIST
Table III - 1

Stream Name	Value	Classification
North Yuba River	Recreational Scenic Cultural Fisheries Botanical	Recreation/Scenic Wild
Empire Creek	Botanical Ecological	Scenic/Wild
Downie River	Botanical Ecological	Recreation Wild
Lavezzola Creek	Botanical Ecological	Scenic Wild
Pauley Creek	Cultural Botanical Ecological	Scenic
Canyon Creek *	Scenic Recreational Historic	Wild Scenic
Oregon Creek	Cultural	Recreation/Scenic
New York Ravine	Botanical Ecological	Recreation
Middle Yuba River	Scenic	Scenic Wild
East Fork Creek	Geology	Scenic/Wild
Macklin Creek	Fisheries	Wild Scenic
South Yuba River	Recreational Cultural Scenic	Recreation/Scenic Wild
South Yuba River (above Spaulding)	Historic	Recreation/Scenic

Stream Name	Value	Classification
Humbug Creek	Historic	Scenic
Fordyce Creek	Recreational	Scenic
North Fork of the North Fork American	Hydrology	Wild
Big Granite Creek	Scenic Recreational	Wild
Little Granite Creek	Botanical	Scenic
New York Canyon	Geological Hydrological Scenic	Wild
North Fork of the Middle Fork American	Scenic Botanical Recreational	Wild Scenic
Screwauger Canyon	Recreational	Scenic
Grouse Creek	Geologic Scenic Hydrologic	Wild
Rubicon River **	Geological Hydrological	Wild Scenic

* shared with the Plumas National Forest
** shared with the Eldorado National Forest

North Yuba River

Eligibility: The North Yuba River is eligible for its fisheries, heritage resources, vegetation, scenic, and recreation values. The fishery values are of Statewide significance in terms of fish diversity, quality of habitat, and trophy fishery. The cultural values are considered to have *high regional significance and probable national significance* for the extent and complexity of the gold mining history and the existing and potential interpretive opportunities available along the North Yuba River. The recreation values are considered to be regionally significant due to the diversity of river-associated recreation activities. The recreation activities range from whitewater rafting to day use and overnight camping opportunities as well as the recreation opportunities offered by the local communities and their overnight accommodations and eating establishments. The scenic values are identified as regionally significant due to the dramatic spatial definition of the river canyon, the lush quality of vegetation, and the diversity of scenic opportunities from the landmark Sierra Buttes, to the waterfalls, rapids, and cultural landscapes of the local towns. The vegetation values are considered of regional significance due to the rare nature of *Lewisia* (small plant) and the likelihood that they are genetically different than other *Lewisia* populations because of geographic isolation.

Classification: During the eligibility phase of the study, the North Yuba River was classified as wild, scenic, and recreation. The longest segment, from the Yuba Pass area to Shenanigan Flat, is classified as recreational due to the level of development along the corridor including towns, roads, and mining claims. The segment from Shenanigan Flat to Race Track Point is classified as wild due to the primitive setting and distinct lack of human development other than a few mining claims. The final segment from Race Track Point to Wambo Bar is classified as scenic due to the existence of a penstock at Wambo Bar that is clearly visible from the river for over a mile of its length.

Lavezzola Creek

Eligibility: Lavezzola Creek is outstanding for its ecological values. The creek corridor is part of an ecologically significant area of old-growth and old-growth-dependent species. The overall area, which includes several streams, is approximately 23,000 acres of natural conditions with extensive stands of old-growth. The old-growth is complex and includes mixed conifer as well as red fir. The vegetation is diverse due to the existence of several meadows and rocky openings within the larger area. The vegetation is highly representative of late-seral-stage ecosystem that is largely intact while also displaying other natural stages of succession. This area is considered significant for the following reasons: 1. There is a high number of species, 2. The vegetation is mostly intact, 3. The area of old-growth is large in size for the Sierras, 4. There is a very dense population of spotted owls in the area, and 5. The dendritic pattern of the streams and tributaries contributes to the

integrity of the watershed system as well as the biological ecosystem. Lavezzola Creek also has a regionally significant fishery.

Classification: During the eligibility phase of the study, segments of Lavezzola Creek are classified as both wild and scenic. The portion of the creek from Smith Creek tributary north is classified as wild due to the primitive setting and distinct lack of access and development. Below Smith Creek the density of mining claims, access, and human development result in a scenic classification.

Canyon Creek

Eligibility: Canyon Creek is outstanding for its heritage resources, scenic resources, and primitive recreation values. The remote canyon contains numerous historic mining sites. These sites include intact mining equipment, town sites and their associated structures, and transportation routes. Steep rocky cliffs, deep plunge pools, dramatic waterfalls, and large boulders include some of the scenic values that extend for many miles. There is very limited access to Canyon Creek, which allows for primitive recreation opportunities providing solitude from human development.

Classification: During the eligibility phase of the study, Canyon Creek was classified as a wild river with the exception of about two miles of stream centered around the Poker Flat area, which has been classified as scenic due to the mining camps, roads, and associated structures. The remainder of the river was classified wild due to the lack of roads, human development, lack of evidence of land management activities, and the overall primitive character. There are some mining claims in the corridor but their physical presence remains relatively low key.

Downie River

Eligibility: The Downie River is part of an ecologically significant area for old-growth and old-growth-dependent species. The overall area, which includes several streams, is approximately 23,000 acres of near natural conditions with extensive stands of old-growth. The old-growth is complex and includes mixed conifer as well as red fir. The vegetation is diverse due to the existence of several meadows and rocky openings within the larger area. The vegetation is highly representative late-seral-stage ecosystem that is largely intact, while also displaying other natural stages of succession. The area is considered significant for the same reasons documented under Lavezzola Creek.

Classification: During the eligibility phase of the study, segments of the Downie River are classified as both wild and recreation. The lower half is classified recreational due to the presence of roads, bridges, cabins, and evidence of management activities. The upper segment, starting near Daves Ravine, is wild due to the primitive

setting and lack of access. It is recognized that there are mining claims with motorized activities, but the access and broader setting meet the criteria for wild classification.

New York Ravine

Eligibility: The unique aquatic resources in New York Ravine are primarily the aquatic invertebrates which are considered "outstandingly remarkable" due to the extremely limited distribution of these Federal Category I and II species. The threatened and endangered status and location of only one population in one stream gives it a high level of significance equivalent to national importance. In addition to the invertebrate populations, there are populations of *Lewisia cantelowii* and Pacific Yew, which is unique to the North Yuba drainage.

Classification: During the eligibility phase of the study, New York Ravine was classified recreation due to the presence of roads, logging activities, and private residences.

Pauley Creek

Eligibility: Pauley Creek is eligible for its ecological and cultural values. The ecological values identified for Pauley Creek are part of an ecologically significant area for old-growth and old-growth-dependent species. The overall area, which includes several streams, is approximately 23,000 acres of near-natural conditions with extensive stands of old-growth. The old-growth is complex and includes mixed conifer as well as red fir. There is also vegetation is diverse due to the existence of several meadows and rocky openings within the larger area. Pauley Creek provides some of the most extensive meadow areas in this whole complex. The vegetation is highly representative of a late seral stage ecosystem that is largely intact while also displaying other natural stage of succession. This area is considered significant as documented earlier under Lavezzola Creek.

The cultural values identified are considered to be of national significance due to the high concentration of petroglyphs and the interface of three distinct Native American cultural groups. Additional prehistoric sites continue along the rest of the stream.

Classification: During the eligibility phase of the study Pauley Creek, was classified as scenic. The Creek was classified scenic due to a combination of motorized trail access, four-wheel-drive access and mining activities.

Empire Creek

Eligibility: Empire Creek is eligible for its ecological values. Empire Creek is part of an ecologically significant area for old-growth and old-growth-dependent species.

The overall area, which includes several streams, is approximately 23,000 acres of near-natural conditions with extensive stands of old-growth. The old-growth is complex and includes mixed conifer as well as red fir. The vegetation is diverse due to the existence of several meadows and rocky openings with the larger area. The vegetation is highly representative of a late-seral-stage ecoysystem that is largely intact while also displaying other natural stages of succession. This area is considered significant for the same reasons documented earlier under Lavezzola Creek and Pauley Creek.

Classification: During the eligibility phase of the study, segments of Empire Creek are classified as both wild and scenic. The upper reaches of the creek is wild due to the absence of development and access. It is recognized that mining claims exist within the wild segment, but the extent of these activities (including motorized dredging) are not predominant enough to change the classification. The lower segment of the creek is classified as scenic due to the road paralleling the creek and the extent of mining claims as well as private land development.

Oregon Creek

Eligibility: Oregon Creek is eligible for its heritage values associated to the covered bridge and the Henness Pass road. The bridge is currently listed on the National Register of Historic Places and is tied to the early transportation history of the Henness Pass road. The Henness Pass road was recently determined to be eligible for listing on the National Register of Historic Places.

Classification: During the eligibility phase of the study, Oregon Creek was classified as recreation due to the number of roads and development within the corridor.

Macklin Creek

Eligibility: Macklin Creek is outstanding for its Lahontan cutthroat trout, federally listed as threatened. This creek is the key contributor to the stocking and restocking program that supports the State Lahontan cutthroat trout recovery program. This specific stream maintains a pure genetic strain of Lahontan cutthroat trout that is being used for restocking programs.

Classification: During the eligibility phase of the study, Macklin Creek was classified as a scenic river due to the presence of roads in the upper reaches of the corridor. The lower segment that drops into the Middle Yuba River is about one mile long and is classified as wild due to the lack of roads, no evidence of logging or management activities, and an overall primitive setting.

Middle Yuba River

Eligibility: The Middle Yuba River is eligible for the overall scenic qualities of the river canyon. The box canyons in the upper reaches are identified as special scenic features for the river. The lower segment of the river has historic values associated with the Oregon Creek covered bridge and the Henness Pass road. The bridge itself is on the National Register of Historic Places and the Henness Pass road is considered a very significant historic tie to supplying goods to the mining communities along the North Yuba River and beyond.

Classification: During the eligibility phase of the study, segments of the Middle Yuba River are classified as both wild and scenic. The majority of the river is classified as wild due to the primitive setting and lack of accessibility. The portions of the river with crossings, logging, and mining camps have been classified as scenic due to the extent of accessibility and development.

East Fork Creek

Eligibility: East Fork Creek is outstanding for its geologic feature. There is a regionally significant waterfall at the head of the creek. The waterfall is a textbook example of waterfall "headcutting" by undercutting the softer base materials. The ability to see several layers of geologic processes in a natural erosion feature is also seen as outstanding and has high public interpretation potential. The quality, size, and quantity of fish are considered to be of high value. After followup regional comparisons, it was determined that the fishery values, while quite high, are not outstandingly remarkable.

Classification: During the eligibility phase of the study, segments of East Fork Creek are classified as both wild and scenic. The majority of the corridor is classified as scenic due to a timber collector road, bridge, and secondary timber access roads. The lower segment of the creek is primitive with no developed access; this portion has been classified as wild.

Upper South Yuba River

Eligibility: The recreation and cultural resources are considered to be outstandingly remarkable due to the high numbers of people using the area in conjunction with the nationally important Overland Emigrant Trail and the tremendous interpretive opportunities presently available. Additionally, the old Lincoln Highway and the Intercontinental Railroad provided additional historic significance and opportunities for interpretation. These values are the basis of the eligibility.

Classification: During the eligibility phase of the study, segments of the river are classified as both recreational and scenic. The segment of river that begins at the Peter Grubb Hut on Castle Peak and ends at the confluence with the South Yuba River was classified as scenic due to the semi-primitive setting with minimal roading and human development. The remainder of the river down to Spaulding Reservoir has been classified as recreation due to the dam structure, accessibility, roading, and past timber sale activities.

Lower South Yuba River

Eligibility: The Lower South Yuba River was found eligible because of the scenic, recreational, and cultural values. The recreation use consists of a wide variety of activities, mostly associated with water-oriented day use or appreciation of the historic values. Day use levels are high and users are from local, regional, and out-of-state locations. The South Yuba trail is a National Recreation Trail, and the Independence Trail is an unique universal-access trail of regional and state significance. The scenic values are of particular note because of the wide variety of high-quality features over the 39-mile length of the river. Large sculptural smooth boulders and bedrock are one of the major attractions both for scenic and recreation values. Other water features, such as pools and falls along with steep canyon walls, are the other scenic values. The cultural values are dispersed along the entire length of the river and feature gold-rush-era history. Of particular note is the Bridgeport Covered Bridge (1862), which is on the National Register of Historic Places. It is designated as a California State Historic Landmark (#390), as well as being listed as a Registered Civil Engineering Landmark (ASCE). The bridge is the longest single span-wooden bridge in the West. For a time, all freight shipped to Virginia City (Comstock silver rush) was transported across this bridge. Other eligible lists to the National Register of Historic Places are: Virginia Turnpike (1853-1901), Bridgeport Townsite (1849-1940's), Excelsior Mining Ditch (1855-1961), Miner's Tunnel (circa 1872), Purdon Crossing Bridge (1895), Edwards Crossing Bridge (1904), and Highway 49 Bridge No. 17-07 (1921). In addition, further upstream from Bridgeport, there are several early gold mining sites with high-potential historic value because the sites are not destroyed by subsequent mining activities. The town of Washington is an historic town developed during the gold rush.

Classification: During the eligibility phase of the study, segments of the lower South Yuba River are classified as wild, scenic, and recreational. The segment from Jordan Creek confluence to 0.3 mile below Langs Crossing is classified recreation because of roads, a canal, and a bridge in the corridor. The next segment starts below Langs Crossing and ends approximately one half mile downstream from Fall Creek and is classified as wild due to the unroaded and primitive character of the corridor. The next segment continues down past the town of Washington to Jefferson Creek and is classified recreation due to roads, logging, housing, and various forms of human development. The last segment continues from Jefferson

Creek to Bridgeport and is classified scenic due to a combination of roads and past logging activities within the quarter-mile corridor.

Fordyce Creek

Eligibility: Fordyce Creek is outstanding for its recreational values. The Fordyce Jeep Trail and it's associated event, the Sierra Trek, is one of a handful of nationally known OHV events. The four-wheel-drive track provides unique challenges and attract participants from around the country. At the same time Fordyce Creek and the canyon provide a very scenic and rugged backdrop for the four-wheel-drive activities.

Classification: During the eligibility phase of the study, Fordyce Creek was classified as scenic due to the presence of a four-wheel-drive jeep trail and some low-intensity logging activities.

Humbug Creek

Eligibility: Humbug Creek is eligible for its recreational and historical values associated with Malakoff Diggings State Historical Park. The values are clearly of National Significance due to the unique engineering techniques of the mining and the historical context of the 1884 Sawyer Decision. The recreational values tie to the interpretation and recreation opportunities in the park and along Humbug Creek down to the South Yuba River.

Classification: During the eligibility phase of the study, segments of Humbug Creek are initially classified as both wild and scenic. Ultimately, it was determined that the segment was too short and inconsistent with the BLM classification of scenic for the South Yuba River just a short distance below. The result is that the entire stream is classified scenic due to occasional roads, some buildings, and other management activities.

Big Granite Creek

Eligibility: Big Granite Creek is outstanding for its scenic quality and primitive recreation values. The canyon has excellent spatial definition (dramatic canyon walls) with large rock outcrops, waterfalls, and plunge pools similar in character to the North Fork American River. The recreation opportunities for primitive experiences are of excellent quality and provide real opportunities for solitude.

Classification: During the eligibility phase of the study, Big Granite Creek was classified as a wild river. The river corridor is primitive with no development or roads.

Little Granite Creek

Eligibility: Little Granite Creek is eligible for its vegetation and recreation values. The Sugar Pine Research Natural Area is considered to be a benchmark sugar pine resource for the Sierra Nevada. The recreation opportunities along the Cherry Point trail, and access to the North Fork American Wild River, are also considered significant recreation opportunities.

Classification: During the eligibility phase of the study, Little Granite Creek was classified as wild due to the primitive setting and the distinct lack of developed access. Classification was revisited after the eligibility phase and, due to logging and road development on private land, the river was classified as scenic.

North Fork of the North Fork American River

Eligibility: The North Fork of the North Fork American River is eligible for its classic hydrological characteristics of an "A" channel with scoured rocks, high waterfalls, and deep plunge pools for the entire reach of the stream. These hydrologic values are considered outstandingly remarkable.

Classification: During the eligibility phase of the study, the entire reach of the North Fork of the North Fork American River up to the confluence with the East Fork of the North Fork was classified as wild due to the lack of roads and modern human development. A few mining claims introduce some human development, but the over all effect is low key and consistent with the wild classification.

New York Canyon

Eligibility: New York Canyon is considered eligible for the dramatic high waterfall. The height (over 600 feet) and the sheer drop of the cliffs give this waterfall enough uniqueness to be considered regionally significant. The outstandingly remarkable values include scenic, geologic, and hydrologic values.

Classification: During the eligibility study, New York Canyon was classified as wild due to its primitive setting and the lack of any human development.

Grouse Creek

Eligibility: The scenic values for Grouse Creek are considered "outstandingly remarkable" because of the dramatic height of the cascading falls and the dramatic canyon seen below the overlook deck. The falls is one of the highest cascading falls in the State and therefore is seen to have regional significance.

Classification: During the eligibility phase of the study, Grouse Creek was classified as wild due to the lack of roads, no evidence of development or management activities, and an overall primitive setting in very rugged terrain.

North Fork of the Middle Fork American River

Eligibility: The North Fork of the Middle Fork American River is eligible for its recreation and scenic values. These values are considered "outstandingly remarkable" due to the high-quality scenic viewing opportunities coupled with the semi-primitive recreation values. The rugged access for both motorized use and foot traffic provide high-quality opportunities for solitude and outdoor challenges. The Western States Trail adds an additional unique recreation element for endurance runners and horseback riding that is recognized nationally. The stream is botanically "outstandingly remarkable" because of known occurrences of *Lewisia cantelowii* and *Lewisia serrata*, which are located in only a few places and are rare or endangered. *Lewisia serrata* has only eight known population locations with four on the NF of the Middle Fork American River.

Classification: During the eligibility phase of the study, segments of the North Fork of the Middle Fork American River are classified as both wild and scenic. The wild segment flows from Screwauger Canyon to about 1/4 mile above the Mosquito Ridge Road bridge. The wild classification is due to the lack of roads, evidence of management activities such as logging, and the overall primitive setting of the canyon. There is one four-wheel-drive road into the canyon down to the stream, but it does not follow the stream for any significant distance. The scenic portion picks up at the bridge and flows to a point approximately 3/4 of a mile upstream from the Middle Fork American River. This point coincides with the official inundation line for the proposed Auburn Dam previously authorized by Congress. The scenic classification recognizes that there are mining claims and mining activities along this segment of stream as well as a major bridge for the Mosquito Ridge Road.

Screwauger Canyon

Eligibility: Screwauger Canyon was found eligible for its remote primitive recreation values. Essentially, this part of Screwauger Canyon continues the primitive recreation

values identified on the North Fork of the Middle Fork American River. This segment continues to provide opportunities for solitude and primitive recreation opportunities.

Classification: During the eligibility phase of the study, Screwauger Canyon was classified as scenic due to previous logging activities and the existence of roads on the upper canyon walls, but still within the 1/2 mile corridor. Even with the logging activities, the overall impression from the river is still relatively primitive, with little human development. There are a few unobtrusive mining claims along the creek.

Rubicon River

Eligibility: The unique gravel deposition and its associated vegetation and braided channel are considered to be outstandingly remarkable and merit eligibility. The feature is considered a unique hydrological and geological feature rarely found in a high mountain stream environment.

Classification: During the eligibility phase of the study, segments of the Rubicon River are classified as both wild and scenic. The middle segment, which includes most of the river, is classified as wild due to the primitive setting, lack of access, and no evidence of logging activities. The lower segment, starting just above Hell Hole reservoir and continuing up river about 1 1/2 miles, is classified as scenic due to extensive past helicopter logging. The upper segment at the wilderness boundary down river about 1 1/2 miles is also classified as scenic due to motorized access on gravel and dirt four-wheel-drive roads.

Rivers Found Ineligible

Butcher Ranch Creek
Fiddle Creek
Goodyears Creek
Haypress Creek
Humbug Creek
Little Humbug Creek
Indian Creek
Jim Crow Creek
Kanaka Creek
Ladies Canyon
Lincon Creek
Little Canyon Creek
Milton Creek
Negro Creek
Secret Canyon
Woodruff Creek
Duncan Creek
El Dorado Canyon
Picayune Creek
Sailor Creek
Tadpole Creek
Big Valley
Bloody Run Creek
Deer Creek
East Fork of the North Fork of the North Fork American River
Fall Creek - not free-flowing
Monumental Creek
North Creek
Poorman Creek
Rucker Creek - not free-flowing
Steephollow Creek
Texas Creek
Trap Creek
Wildcat Creek
Spencer Creek
Berrey Creek
Smithneck Creek
Greyhorse
Duncan Creek
Middle Fork American River (between Ox Bow Reservoir and French Meadows Reservoir)
Middle Fork American River (above French Meadows Reservoir)

CHAPTER IV
THE AFFECTED ENVIRONMENT

Introduction

This chapter describes the character and resources of the eligible wild and scenic river corridors (the rivers plus quarter mile of land area extending out from each side of the river). The current conditions, as well as any existing trends, are generally described to acquaint people with the corridors and provide a basis from which to assess the consequences of the various management alternatives to be presented in Chapter V. This chapter is organized into two major sections. The first section provides broad general overviews of various resources common to all or most of the rivers. The second section describes the existing situation and conditions for each river within a large drainage context. More detailed descriptions of the individual rivers are located in Appendix D.

Location

The twenty-two eligible rivers for wild and scenic river status are located in the Yuba and American River drainages. These drainages are located within the Tahoe National Forest (TNF) in the westside of the north-central Sierra Nevada mountains in the State of California and are located within Sierra, El Dorado, Placer, Plumas, Nevada, and Yuba Counties (see vicinity map). The rivers studied total 298 miles of perennial streams. The location of the study rivers are shown on the map on Page S-2.

Climate

Elevations in the upper drainages typically range from 6,000 to 9,000 feet in the Sierra on the eastern end of the study area, to 1,200 feet in the western end of the study area. The upper elevation climate is characterized by long, cold winters and by short, moderate-to-warm summers. Precipitation follows a seasonal pattern, primarily occurring from late October through early May. Winter precipitation at about 5,000 feet is normally in the form of snow. The spring runoff season lasts longer than is normal for drainages at lower elevations, extending into July, as the snow pack at the highest elevations melts late in the season. The lower elevation climate is characterized by warm, dry summers alternating with cool, wet winters. Overall precipitation in the study area is moderate although this area has experienced extended drought periods during the past ten years.

Landforms

Many of the higher slopes and peaks along the Sierra crest have been glaciated, exposing the hard underlying rock materials with glacial moraines formed along the adjacent slopes and valleys. These landforms are observed in the upper end of the Yuba and American River drainages. The majority of the study area tilts to the west, exhibiting nearly uniform flat ridges which have been dissected by westerly flowing rivers.

Soils

The study rivers are located in deep canyons separated by nearly level sloping, broad ridgetops. Soils on the steep canyon sideslopes have developed mainly from metasedimentary and ultrabasic bedrock; soils on the ridgetops have developed primarily from andesitic tuff breccia mudflows of the Meherten Formation. Soils in the vicinity of New Bullards Bar Reservoir has developed mainly from granitic bedrock. Soils along these river corridors are considered to be some of the most productive in the Forest. Soils located in the upper reaches of the American and Yuba River drainages (above 5,500 feet) along the crest of the Sierra have developed from volcanic, metasedimentary, and granitic rocks, and from glacial-alluvial deposits. Steep slopes and shallow, rocky soils limit productivity in these upper canyons.

Mineral Resources

The majority of the study rivers are located within the historic Northern Mines gold mining region (Downieville to Placerville). Commercial gold production along the river banks has declined since World War II. The increase in the price of gold during the past several years has created a second gold rush of both mining for recreation and speculation in gold mining properties. The need to provide plans of operations for the mining activities has increased over the past 20 years. Mining, particularly gold mining is an important activity on many rivers in this study. Those rivers within the Northern Mines District are literally covered with mining claims numbering in the thousands. In many cases mining claims overlap mining claims. The Tahoe National Forest has the highest number and concentration of mining claims of any Forest in California. The claims may or may not be active so the total number of claims is not as significant as the amount of mining activity on the ground. In regards to activity all the rivers on the North Yuba Drainage have high levels of activity. The Middle Yuba and South Yuba River drainages have high to moderate levels of activity with a few tributaries having little activity. The American River drainages have moderate to low activity levels with a few remote tributaries

with no activity. Another measure of the importance of mining is the number of jobs which is covered under the economic and social environment section.

Other important minerals such as chromite, barite, silver, iron, copper, sand, and gravel are not currently mined within the river corridors.

Water Supply and Flood Protection

Water storage, diversion, and delivery are key components to the success of supplying water to Californians. The population centers are not located near the water sources and rely on storage and delivery systems. Environmental concerns, especially in the Sacramento-San Joaquin Delta, require storage and scheduling of flows to maintain suitable habitat for several threatened and endangered species.

Currently there are water contracts for 6.5 million acre feet of water for delivery to agricultural and municipal entities south of Tracy. The Central Valley Project Improvement Act, passed in 1992 to provide protection for delta species, requires 800,000 acre feet be dedicated to habitat enhancement in the delta. The river systems, which include the segments under consideration, provide up to 50 percent of the tributary flow to the Sacramento River. What is unknown is what impact delta flow requirements may have on foothill water agencies. There is always the potential that foothill water agencies may be required to supply more water during certain periods of the year to augment flows in the delta. Since timing of flows is a key factor in California where dry summers prevail, additional releases may tax the existing storage capacity of foothill and Sierra reservoirs. It also may affect the amount and price of water available to local customers.

There is a history of flooding in the Yuba City/Marysville area which is located just north of confluence of the Yuba and Feather rivers. An extensive series of flood levees have been built along the Feather River to protect the towns of Marysville, Yuba City, and Linda. An Army Corps of Engineers study in 1990 found that the present levee system only provides a 68 year level of flood protection rather than the 200 year level desired by the towns. (A 200 year flood event means a flow of a certain magnitude has only a one half of one percent chance of occurring in any year). The last major flood episode was in February 1986 and was estimated to be only a 30 year event. (That is, the chance of a flow of this magnitude occurring in a given year is about three percent). During this flood the levee protecting Linda failed and extensive flood damage occurred. The 1986 flood inundated 7,000 acres, damaged 3,000 homes and resulted in the temporary evacuation of nearly 24,000 people. All five counties that the twenty-two rivers flow through discourage building within the 100 year flood plain with zoning set-back restrictions.

The Yuba and American Rivers and their tributaries provide water, flood protection, and power production to foothill communities extending from Marysville to Auburn with a population exceeding 200,000 individuals. The water supply and flood protection for the City of Sacramento and other Central Valley communities is also connected to the rivers in the study. As shown in Appendix E, the Yuba and American river drainages are extensively controlled by dams and diversions.

The Middle and North Yuba Rivers provide water supplies to the Yuba County Water Agency (YCWA) through the New Bullards Bar Reservoir in conjunction with the Army Corps of Engineers' Englebright Reservoir on the main stem of the Yuba. The Yuba County Water District holds water rights on Canyon Creek in anticipation of construction of a reservoir to divert water north to supply water to the northern third of Yuba County. The Middle and South Yuba and the North Fork of the North Fork American River provide water supplies and power production through the Nevada Irrigation District's (NID) Yuba/Bear Project and Pacific Gas and Electric's (PG&E) Drum/Spaulding Project. Placer County Water Agency (PCWA) also uses water from these projects as well as supplies from the Middle Fork American and Rubicon Rivers.

Due to the history of extensive flooding in the Marysville/Yuba City area as well as the projected population increases, the YCWA has developed a plan to construct several reservoirs in the Yuba drainage. As shown in Appendix E, a reservoir is planned at Wambo Bar on the North Yuba just upstream of New Bullards Bar Reservoir. Other reservoirs are planned at Edwards Crossing on the South Yuba, Freemans Crossing on the Middle Yuba and at Parks Bar on the Main Yuba below Englebright Reservoir. As noted previously, the Yuba County Water District also has plans to build a dam on Canyon Creek. PG&E and PCWA have developed plans to raise the existing spillways at Spaulding and Hell Hole reservoirs. All of these projects are still in the study phase and it is unknown at this time whether the projects will be built. However, the agencies do hold water rights sufficient to build the dams if they decide to construct any of the proposed dams.

Over the past 30 years, especially in the late 1970's into the 1980's, there has been an increasing trend in small hydroelectric proposals within the five study drainages. The majority of the small hydroelectric proposals have met with strong local opposition. Currently, there are no proposals being considered for small hydroelectric development within the five drainages.

Streamflow and Diversions

The North Yuba and all of its tributaries are free flowing until New Bullards Bar Reservoir. New Bullards Bar Reservoir is operated by YCWA and provides flood protection, power production and irrigation supplies for southern Yuba County.

New Bullards Bar Reservoir has flood control storage of 170,000 acre feet (one acre foot of water would cover a football field one foot deep) and provides 367,000 acre feet of water annually for irrigation and municipal supply. Power production averages 1.2 billion kilowatt-hours. If all of the proposed dams were constructed, an additional 320,000 megawatt-hours of electricity and an additional 230,000 acre feet of flood control storage could be provided.

The Middle Yuba is dammed near its headwaters by Jackson Meadows and Milton reservoirs which are part of NID's Yuba/Bear project. Water is diverted from Milton via the Milton-Bowman diversion to Bowman Lake on Canyon Creek (not the Canyon Creek being considered for designation). Summer flows in the Middle Yuba below Milton are regulated under a Federal Energy Regulatory Commission license so that a minimum of three cubic feet per second (cfs) is released into the river to maintain the fisheries. Three cfs is equivalent to 1350 gallons per minute or would fill a stream channel six feet wide about 6 inches deep.

Further downstream, the flow in the Middle Yuba is transferred by PCWA at Our House into Oregon Creek via the Lohman diversion. This diverted water plus flows from Oregon Creek is further transferred via the Camptonville Tunnel into New Bullards Bar Reservoir. Summer flows in the Middle Yuba below the Our House diversion must be maintained at a minimum of 30 cfs or ten times the flows released from Milton. This amount of water would fill a stream channel 30 feet wide about 1 foot deep. The flow in the Middle Yuba at the Highway 49 bridge averages 30 to 35 cfs in the summer for comparison.
The South Yuba is the major beneficiary of most of the water diversions. There are several small reservoirs used for summer incidental storage in the headwaters of the South Yuba near Donner Summit but the primary storage facility is Spaulding Reservoir. Spaulding eventually receives the water diverted by NID from the Middle Yuba into Bowman Reservoir plus water from a myriad of small streams tributary to Canyon Creek and Fordyce Creek. Water is also diverted into the South Yuba below Spaulding from Lake Valley Reservoir which is on the North Fork of the North Fork American River. Releases from Spaulding to maintain flows for fish in the South Yuba are required to be maintained between 3 and 5 cfs depending on the amount of water diverted from downstream tributaries such as Canyon Creek. The water supplies from the Yuba/Bear and Drum/Spaulding projects provide municipal and irrigation water supplies to over 100,000 people and produces approximately 80 percent of the entire hydroelectric power generated by the Drum Spaulding Project, approximately 900 million kilowatt-hours of electrical production.

The North Fork of the North Fork American River (NFNFAR) is the only other proposed stream that is presently dammed within the Tahoe NF. The section of the Rubicon River proposed for designation is above the influence of the dam forming Hell Hole Reservoir, even if the spillway at Hell Hole is raised. There are also small dams on the Rubicon River above the segments being considered in

this study on the Eldorado NF. As mentioned above, the NFNFAR is dammed near its headwaters to form Lake Valley Reservoir which is part of PG&E's Drum/Spaulding project. Water is transferred to the South Yuba to augment flows for power production. PG&E is required to release 5 cfs from Lake Valley Reservoir into the NFNFAR to provide for fisheries.

As mentioned above, PG&E and PCWA have current studies recommending increasing the spillway heights at Spaulding on the South Yuba and Hell Hole reservoir on the Rubicon. As noted in the Water Supply and Flood Protection section, the foothills area is rapidly growing and the various water agencies predict that there will be a need for expanded facilities in the future to meet the need of growing populations.

A water diversion map depicting these tunnels and Reservoirs can be found in Appendix E The remainder of the rivers are located upstream of dams and either flow into other rivers or reservoirs. None of these streams continue free flowing to the Pacific Ocean.

Water Quality

Water quality protection in California has been delegated by the federal Environmental Protection Agency (EPA) to the State. The State enforces the tenets of the Clean Water Act under a California law, the Porter-Cologne Water Quality Control Act. This act defines water quality objectives as the "limits or levels of water quality constituents or characteristics which are established for the reasonable protection of *beneficial uses* of water or the prevention of nuisance" within a specific area.

The twenty-two rivers considered in this analysis are all within the Sacramento River Basin (5A) administered by the Central Valley Regional Water Quality Control Board. Beneficial uses and water quality objectives for these rivers are designated in the "Water Quality Control Plan" or "Basin Plan" (March, 1989). Designated beneficial uses for the North Fork American River and its tributaries above Folsom Reservoir include: municipal and domestic water supply, irrigation, contact and non-contact recreational use, cold-water fisheries migration and spawning habitat, and wildlife habitat. Beneficial uses identified for the Middle Fork American River and its tributaries above Folsom Reservoir and for the entire Yuba River system above Englebright Reservoir are the same as for the North Fork American River plus stock watering and hydroelectric power supply. All of these uses currently exist to some degree as identified in the river descriptions in the Affected Environment section of this document.

Wildlife

The federal agencies, in cooperation with the California State Department of Fish and Game (CDF&G), manage the fish and wildlife resources and habitats within the study area. Almost all of the river corridors are open to hunting and fishing. Most of the streams are stocked annually with a variety of rainbow trout, brown trout, and brook trout. Inventoried wildlife and fish species are discussed under the affected environment drainage discussions and in Appendix D under individual river descriptions.

Botanical Resources

The proposed project area does not contain known occurrences or potential habitat for federally threatened, endangered, or proposed plants. The proposed project area contains potential habitat for the sensitive plant species: *Arabis constancei* (Contance's rockcress), *Calochortus clavatus* var. *avius* (Pleasant Valley tulip), *Erigeron miser* (Starved daisy), *Eriogonum umbellatum* var. *torreyanum* (Torrey's sulfur buckwheat), *Fritillaria eastwoodiae* (Butte fritillaria), *Lewisia cantelowii* (Wet-cliff Lewisia), *Lewisia serrata* (Saw-toothed Lewisia), *Penstemon personatus* (Closed-lip penstemon), *Phacelia stebbinsii* (Stebbin's phacelia), *Scheuchzeria palustris* var. *americana* (American Scheuchzeria), and *Vaccinium coccinium* (Scarlet huckleberry). Field surveys have not been completed. For purposes of this study, it was assumed that the sensitive plant species was present if potential habitat was identified. There are known occurrences of *Lewisia cantelowii* and *Phacelia stebbinsii* within the study area.

The study area also has potential for certain species of plants and plant communities that may become increasingly rare (Forest Service watch-list). These plants and communities are in addition to threatened, endangered, proposed, and sensitive plant species. Surveys for the watch-list plants were not conducted. It is assumed that those watch-list plants identified as having potential habitat exist within the proposed project area. The following watch-list plants and communities were identified as having potential habitat within the proposed project area: *Allium sanbornii* var. *congdonii* and *Allium sanbornii* var. *sanbornii* (Sanborn's Onion), *Taxus brevifolia* (California yew), *Torreya californica* (California nutmeg), *Darlingtonia californica* (Pitcher plant), *Drosera rotundifolia* (Round-leaved sundew), *Drosera anglica* (English sundew), *Cypripedium fasiculatum* (Lady-slipper orchid), *Cypripedium montanum* (Mt. lady-slipper orchid), *Viola tomentosa* (Wooley violet), *Silene invisa* (Hidden-petal campion), bogs, fens, and vernal pools. There are known occurrences of *Taxus brevifolia*, *Viola tomentosa*, and *Silene invisa* within the study corridors.

Ecological Resources

Rivers and streams accentuate the interaction between aquatic and surrounding terrestrial ecosystems. These streams and rivers provide avenues of transfer (laterally and downstream) of water, nutrients, sediment, particulate organic matter, and organisms. They are important routes for the dispersal of plants and animals both up and down stream and provide corridors for migratory species (Gregory, Swanson, McKee, Cummins, 1991). Various plant communities (and the plants and animals that live in them) occur along the river corridors are becoming increasingly rare. The following lists these communities.

Vernal pools: Vernal pools are generally small, poorly drained depressions in relatively flat areas. California vernal pools are well known for their unique flora. It is widely recognized that vernal pools are among the most threatened wetland ecosystems in the State (Stone, 1990). There are no known vernal pools along the study corridors. There are potential vernal pools along East Fork Creek, Macklin Creek, and Fordyce Creek.

Riparian areas: Riparian areas function in providing fish and wildlife habitat, erosion control, forage, late-season streamflow, and water quality. It is estimated that most states have experienced dramatic reductions in riparian habitat. Loss of riparian habitat over the past century has been wholesale. Johnson (1978) suggested that perhaps only 10 percent of the original riparian habitat of the United States remains today, and further estimated that about 6 percent of this amount continues to be lost annually. Another source (Jenson, Torn, Harte, 1990) estimates that nearly 90 percent of the interior wetlands and central valley riparian forests of California have been destroyed, and nearly all the aquatic habitats in the State have been altered or degraded. There are known riparian areas (of varying size) along all of the drainages within the proposed project area.

Old-growth areas: Important biological values of old-growth include habitat for a variety of animal and plant species, biodiversity and pools of genetic resources, and long-term biological records of climate (Kaufmann, Moir, and Covington) . The amount of old-growth forest that currently exists on the TNF and across the world is unknown. The amount of old-growth that exists today is substantially less than what existed in the past. The importance of these communities centered on watercourses was pointed out in the TNF recommendations for fish and late-seral stage wildlife (Chapel, et al., 1992). Older forests along rivers and streams provide recruitment of large, woody debris (LWD) to stream environments. LWD provides nutrients, shapes the stream channel, traps sediments, creates structural complexity and rearing habitat for fish, etc. (Chapel, et all, 1991). There are known old-growth communities (of various sizes and shapes) along Canyon Creek, Downie Creek, Empire Creek, Lavezzola Creek, Pauley Creek, North Yuba River, East Fork Creek, Oregon Creek, Middle Yuba River, Humbug Creek, Fordyce Creek, South Yuba

River (upper and lower), North Fork North Fork American River, Big Granite Creek, Little Granite Creek, New York Canyon, North Fork Middle Fork American River, Grouse Creek, Screwauger Canyon, and the Rubicon River.

The Canyon Creek, Downie River, Pauley Creek, Lavezzola Creek, and Empire Creek corridors and surrounding ridges contain some large blocks of old-growth forest. The old-growth ecosystem surrounding the Empire, Downie, Lavezzola, and Pauley drainages in the North Yuba River system includes several unique plants and animals. This area provides the highest density of California spotted owls on the TNF, and has unique plant communities such as high meadows, pacific yew, sundew, and other wetlands. There are reported sightings of peregrine falcons, bald eagles, goshawks, and wolverine. Other species observed include golden eagle, pileated woodpecker, and numerous neotropical songbirds that are associated with older forests. Pacific fisher have not been confirmed, but the roadless character of this area associated with large blocks of old forest make it highly likely that fisher occur in the area. Other old-forest-dependent furbearers likely to be present in the area include the Sierra Nevada red fox and marten. Marten have been seen in the higher elevation meadows associated with Pauley and Lavezzola Creeks.

There are no other large, unroaded, ecosystems in the general region (Plumas, Eldorado, Lassen, and Tahoe National Forests) that provide the same dendritic stream pattern as the old-growth ecosystem surrounding the Empire, Downie, Lavezzola, and Pauley drainages in the North Yuba River system.

Fens: Fens are unique ecosystems/plant communities with distinguishing characteristics. They are scattered in the Sierra Nevada in cold, permanently waterlogged soils. Subsurface hydrology is extremely important in their formation and continuation. Fens affect the water chemistry and sediment yield of associated streams and are very sensitive to disturbance (Erman and Erman, 1975). Fens occur throughout the North American and European continents. California fens do not resemble fens that occur in the more eastern states (Thorne, 1976). There are no known fens within the study corridors. There is potential for fens within the study corridors along all of the streams being analyzed.

Meadows: Meadows comprise only 10 percent of the land area of the Sierra Nevada of California. These plant communities provide important habitats for specific plants and wildlife. There are meadows (of various sizes and shapes) within the study corridors along Pauley Creek, Lavezzola Creek, North Yuba River, Oregon Creek, Middle Yuba River, Little Granite Creek, East Fork Creek, Macklin Creek, and the Rubicon River. There is potential for this plant community to exist within all of the study corridors.

Threatened, Endangered, and Sensitive Species

This section identifies species of animals that are currently listed on the federal endangered or threatened list; species that are on a list of sensitive species maintained by either the Forest Service or the state; or species listed as being of Special Interest by the State. Category 1 indicates species where there is sufficient information for the U.S. Fish and Wildlife Service (F&WS) to make a determination whether to include the species on the federal list. Category 2 are those species where there is insufficient information to make a determination for listing. A few of these species could be potentially affected by river designation, which should be primarily beneficial. However, most species would not have habitat directly affected by the action of designation. The following table illustrates the three species listing categories from the Forest Service, State of Calfornia, and U.S. F&WS.

Table IV.1
Threatened / Endangered / Special Interest / Sensitive
Wildlife Species

Threatened/Endangered Species - Fish and Wildlife

Species	Source
Lahontan cuttroat trout - threatened species	Fed/CA
American bald eagle - endangered species	Fed/CA
American peregrine falcon - endangered species	Fed/CA
Sagehen Creek goeracean caddisfly - Cat. 1 Species	Fed

Species of Special Interest

These are species that have been identified as being of special interest and listed as Category 2 by the US Fish and Wildlife Service.

Species	Source
Mt. Lyell salamander	Fed
Yellow-legged mountain frog	Fed
Wolverine	Fed
Mono Basin mountain beaver	Fed
Sierra Nevada snowshoe hare	Fed
Cold Spring caddisfly	Fed
Confusion caddisfly	Fed
Kings Canyon cryptochian caddisfly	Fed

Sensitive Species

Species	Source
Sierra Nevada red fox	FS\CA
California spotted owl	FS
Goshawk	FS
Willow flycatcher	FS
Marten	FS
Pacific fisher	FS
Great grey owl	FS

Visual Resources

Visual or scenic quality was inventoried and visual quality objectives (VQOs) established and documented in the Tahoe Land and Resources Management Plan of 1990. The scenic quality inventories evaluated areas of land on the Forest for their scenic quality (variety class) and were categorized as high, moderate, of low quality. Many streams and most of the rivers identified as eligible were rated as high scenic quality. Those streams with few water features, average landforms, and uniform vegetation were rated as moderate or low in quality. It is worth noting that even streams rated as low scenic quality will have visual attraction due to the dynamic and continually changing nature of streams and rivers. Further descriptions of the scenic character are found later in this chapter under descriptions of eligible rivers by drainage.

VQOs for the twenty-two westside streams are described and adopted for each area of land as documented in the Forest Land and Resource Management Plan (TLRMP) VQOs are described in the following terms.

Preservation (P):	Provides for ecological changes only. Management activities except for very low visual impact recreation facilities are prohibited.
Retention (R):	Where human activities are not evident to the casual Forest visitor.
Partial Retention (PR):	Where human activity may be evident, but must remain subordinate to the characteristic landscape.
Modification (M):	Human activity may dominate the characteristic landscape but must, at the same time, follow naturally established form, line, color, and texture.

When rivers are recommended for designation, the appropriate visual quality objective is applied by classification as follows:

Wild -	Preservation VQO
Scenic -	Retention VQO
Recreation -	Retention or Partial Retention VQO

For a recreation classification, adopt a retention VQO in areas that typify the outstanding values for which the river was designated and in areas which receive a large amount of recreation use. The remaining corridor can be managed for a partial retention VQO unless the Forest Plan already has a retention VQO. Comparing

the Forest Plan adopted VQO with changes due to scenic and wild classifications will help identify required changes in management and the ensuing consequences. This is discussed further under Chapter V Environmental Consequences.

Recreation

recreation is a major activity on the TNF and has been ranked fifth or sixth in the nation in terms of total recreation visitor days. Many of the recreation activities on the westside of the Sierra crest center around either rivers and streams or reservoirs. Many of the streams have major attractions that draw recreation users from the local, regional, and State level. The Forest also draws out-of-state users and international travelers. Recreation use is particularly high on the larger rivers with roaded access and existing Forest Service, Bureau of Land Management, State Park, and private recreation facilities. The North and South Yuba Rivers are notable because of the high number of users and the range of river-access points and recreation facilities available to the public. On these rivers there are a wide range of recreation activities taking place. Popular activities include rafting, swimming, wading, picnicking, fishing, sun-bathing, and general day use activities involving the appreciation and enjoyment of the river environment. Public comment and present management of the rivers indicate that areas of high use exist where there are concerns about sanitation, trash, and trespass on private property. Most of the rivers on the westside have many mining claims and there are occasional conflicts between recreation activities and mining activities.

Many of the remaining rivers have some elements of public use as described above but not to the same intensity. Additionally, these rivers plus parts of the North and South Yuba Rivers have areas that provide remote or primitive to semi-primitive recreation opportunities. These rivers are generally classified as scenic or wild and provide opportunities for backpacking, hiking, overnight camping, and river activities in remote settings where encounters with other people are reduced and the recreation user must rely on back-country skills to enjoy the area. All of the river areas are presently identified in the TLRMP through the recreation opportunity spectrum (ROS) in the following categories:

Urban:	Area is characterized by a substantially urbanized environment, although the background may have natural-appearing elements.
Rural:	Area is characterized by substantially modified natural environment where sights and sounds of humans are readily evident.

Roaded Natural:	Area is characterized by a predominantly natural-appearing environment with moderate evidences of the sights and sounds of humans and their activities.
Semi-Primitive Motorized:	Area is characterized by a predominantly natural or natural-appearing environment of moderate to large size. Concentration of users is low. Opportunities for public motorized use is permitted.
Semi-Primitive Non-Motorized:	Area is characterized by a predominantly natural or natural appearing environment of moderate to large size. Concentration of users is low. Public motorized use is not permitted.
Primitive:	Area is characterized by an essentially unmodified natural environment of fairly large size where interaction among users is very low and evidence of other users is minimal. Motorized use within the area is not permitted.

Depending on the river classification, certain ROS classes will be compatible as follows:

Recreation:	Urban, Rural, Roaded Natural
Scenic:	Roaded Natural, Semi-Primitive Motorized, and Semi-Primitive Non-Motorized
Wild:	Primitive

In some alternatives different river classifications are recommended which may be different than the present TLRMP allocation and may suggest different consequences. More specific recreation information is covered later in this chapter under descriptions of eligible rivers by drainage.

Grazing Management

A moderate number of domestic livestock, primarily cattle and sheep, graze the range allotments within and adjacent to the study river corridors. The majority of grazing is confined to the ridge tops. The Gold Valley, Willow Creek, American

Hill, Bowman, Canyon Creek, Duncan Sailor, Deadwood, Mosquito Ridge, Hellhole, and Oregon Creek grazing allotments border or slightly overlap into the study rivers corridors. Livestock grazing is managed in accordance with the TLRMP standards and guidelines and individual allotment management plans.

Economic and Social Environment

A complete description of the social and economic setting for the TNF is included in the Forest Plan, Chapter III (p. III-39 to III-44) and Environmental Impact Statement (EIS) for the TLRMP, Chapter III (p. 3-2 to 3-13). Nevada, Placer, Sierra, and Yuba Counties are directly affected by virtue of the study evaluating several rivers within their boundaries and having substantial interest in the water flowing from these rivers. El Dorado County has approximately three miles of the Rubicon River within its boundaries as it flows northwest out of Desolation Wilderness; this segment of river is quite remote and not near communities or even occasional residences. Plumas County does not have any rivers under consideration within its boundaries, but does have timber mills that rely to a considerable extent on forest products from sales of timber on the Tahoe National Forest and Plumas National Forest

Based on the above information Nevada, Placer, Sierra, Yuba, and Plumas counties are the primary analysis area. While El Dorado County is not part of the primary analysis, many of the characteristics described for the other Counties will apply to El Dorado County. The four industries that have the most direct relation to recommendations on wild and scenic river classifications are wood products industries, mining, tourism, and utilities.

For wood products there are two economic indicators that illustrate the relative importance of this industry, both socially and economically. The first is the number of jobs generated for each county and the second is the amount of revenue shared with counties from the 25 percent of National Forest receipts. Table IV-2 displays the timber employment in the Sierran counties in 1990 and shows the number of full time employees and the percent of the total labor force for each county. This table gives the reader an indicator of the relative importance of the wood products industry for each of the primary counties as well as comparing it to other Sierra Nevada counties. Table IV.3 displays the amount of TNF revenues shared with the counties. These revenues are used for roads and education needs in each of the counties listed.

Table IV-2
Timber Employment in Sierra Nevada Counties in 1990

Sierra Nevada Counties, North to South	**Full time employees in logging, sawmilling and wood remanufacturing**	**Percent of 1990 Total Labor Force in County in Timber Industry**
Shasta	2412	4.3
Tehama	1377	6.0
Lassen	721	8.0
Plumas	874	11.0
Sierra	200	12.9
Butte	1753	2.5
Yuba	738	4.1
Nevada	469	1.6
Placer	1275	1.7
El Dorado	1103	1.7
Amador	661	6.3
Calaveras	173	1.7
Alpine	0	0.0
Tuolumne	537	3.0
Mariposa	37	0.5
Madera	100	0.3
Fresno	1074	0.4
Tulare	1440	0.7
Kern	445	1.2

Source: Employment Development Department of California

Table IV-3
Tahoe National Forest
25% Fund Payments to Counties (in dollars)

Year	Nevada	Placer	Plumas	Sierra	Yuba	Total
FY 1980	384,562	637,720	27,014	831,641	48,625	1,929,562
FY 1984	730,537	1,231,693	51,002	1,577,123	92,392	3,682,747
FY 1988	1,023,000	1,660,000	68,000	2,133,000	123,000	5,007,000
FY 1990	797,000	1,295,000	53,000	1,662,000	96,000	3,903,000
FY 1992	617,984	1,003,800	41,528	1,285,762	74,055	3,023,145
FY 1994	574,133	921,526	37,788	1,179,369	67,920	2,780,749

Note: the counties also receive 25 percent fund payments from other National Forests, based on the acreage of the Forests in the individual counties and the revenues generated by resource programs of the individual Forests. For this study the Plumas National Forest and the Eldorado National Forest are the Forests that would contribute additional revenues in this fund.

Table IV-4

Nevada County:	196,349 acres	$20,000 payment
Placer County:	366,986 acres	$80,000 payment
Sierra County:	430,735 acres	$43,000 payment
Yuba County:	9,109 acres	$5,000 payment

Payments in Lieu of Taxes

Counties are paid "Payments in Lieu of Taxes" (PILTs) each year as a way to compensate county governments for non-taxable federal land. Payment amounts are reduced by 25 percent Fund payments from the Forest Service (as well as payments from the BLM, Federal Energy Regulatory Commission (FERC), and U.S. F&WS. The more 25 percent fund payments a county receives, the less it receives in PILT revenues -- down to a specified minimum amount. Until this year when the PILT legislation was amended, Counties received $.75 per acre of entitlement land, less 1/2 of the payment from the 25 percent fund (and revenue sharing by other federal agencies), to a minimum of $.10 per acre. Entitlement land includes land administered by the Forest Service, National Park Service, Bureau of Land Management, U.S. Fish and Wildlife Service, land in federal water resource projects. Payments are also limited to a maximum amount per capita, but this limit is generally not binding except in counties with very small populations. Future PILT payments will be increased due to an amendment in the law signed by the President in October 1994. The new maximum and minimum amounts replace the $.75 maximum and $.10 minimum amounts under the old law.

From a social perspective the wood products and logging industry has a varied influence on the counties being considered. Traditionally, the logging industry has been an important aspect of lifestyles in the local communities since the middle 1800's. Not only were wood products supplied for a wide range of economic needs, but many of the smaller communities were settled and continue to have people involved in that industry. One of the attributes these folks bring to small communities is a knowledge and interest of the forests and lands beyond the direct influence of these communities. Many of these same people also were, and continue to be, users of a wide range of forest recreation opportunities.

For the mining industry the number of jobs provided is a good economic and social indicator of the importance of mining activities for each county. state and county information collected does not always provide an accurate indicator of the amount of jobs provided in this industry on the TNF. For example, in Sierra County the number of jobs listed in mining for 1990 are less than 25 and rounded to

zero. This figure comes from information provided by Sierra Economic Development District (EDD), Auburn, California in their EDD Annual Planning Information, 1994. Part of the reason for this is that mining is often reported as part of other activities such as construction. Other factors are that self employed people are not reported and only full-time salaried employees are counted. Supplemental information from District lands and minerals staff is therefore being used to provide a more accurate picture of employment. Based on discussions with Dick Zembiec, Minerals Officer for Downieville Ranger District, it is estimated that 150 people are employed in the mining industry in 1994 as salaried employees in Sierra County. Of those 150 people, approximately 50 percent are employed year long. Mr. Zembiec also indicated that at this point in time the 150 people represents the higher end of typical employment in the mining industry for Sierra County. Over time the mining industry can have wide swings in employment due to prices in gold, depletion of the resource in a major mine, or new discoveries. In addition, there are 300 to 400 people are involved in gold mining on a part-time basis in the self-employed category. Many of these people have mining claims as individuals, married couples, or limited partnerships. These claims are generally worked in the summer, but the amount of work can range from several weekends to several months of work. The income from these activities range from supplemental to being the major source of income for the year for an individual.

In Sierra County mining and miners have been a major and integral part of the social fabric for several small communities. Essentially, mining is what created most of the communities that exist today. In addition to the direct economic benefits from mining, the miners live in or depend on the local communities for supplies, entertainment, mail, and a range of social services. These same communities are also centers of socializing for the miners, the place that news and social contacts are established or renewed. An example of the mining influence on small communities is best exemplified in Downieville where miners can still use gold at local stores for currency. Many past events and even present activities relate or revolve around the mining activities in Sierra County. For many of the part-time miners the rural outdoor life style may be a major attraction while they continue a local tradition. For recreation visitors the mining history and present-day mining is part of the overall recreation attraction. The Yuba Donner Scenic Byway Implementation report recognized that local mining character and the local services, such as the local gold shops, are a major attraction and also the key link to tourists enjoying and using a whole range of recreation opportunities in the region.

Yuba County does not have a large area within the Forest boundary. Downieville Ranger District estimates approximately 30 to 50 people employed part-time with various mining claims concentrated mostly on the North Yuba River and Canyon Creek. Other mining operations, like sand and gravel, are not within the Forest boundary. From a social perspective the miners within the Forest boundary have

loose social ties at informal meeting places. Otherwise, much of their social activities and effects overlap to small adjacent communities in Sierra County.

Nevada County lumped mining and construction into the same category. In 1992 mining and construction employed 1,625 people, which represents 7.4 percent of the workforce. Almost all of these jobs are provided outside of the Forest boundary. Additionally, 135 people are estimated to be employed in gold mining on a part time basis on National Forest System lands within Nevada County based on estimates from Greg Schimke, Minerals Officer on the Nevada City Ranger District. The income from these part-time jobs range from minor supplemental to a major source of income for the year. Outside the Forest boundary, the San Juan Ridge Mine is presently employing around 60 full-time employees. In Placer County Mr. Schimke estimates that about 100 people are working part-time on claims on National Forest System land within Nevada City Ranger District. Harlan Hamburger, Lands and Minerals Officer for Foresthill Ranger District estimates that an additional 100 people work on part-time claims on the Foresthill Ranger District within Placer County. Plumas County shows 50 people employed in mining in 1990 based on statistics from the Plumas County General Plan 2nd Edition 1994.

From a social perspective Nevada, Placer, and Plumas Counties all have rich histories relating to the early gold mining activities. Similar to Sierra County, several small communities were started and grew because of mining activities. Today within the Forest boundary, social influence of mining is most visible in the communities of Washington and Foresthill. Most of the social aspects of mining in these counties relates to miners choosing a rural outdoor lifestyle with mostly informal contacts in mostly remote settings usually along rivers.

The California County Travel Impacts Report, 1993, reports the economic importance of tourism for each county. This report displays the total dollars spent on travel and travel-associated activities, the payroll dollars spent in this sector, number of jobs, local tax receipts, and State tax receipts from tourism. See table IV.6 for information on each of the Counties under discussion. For both Nevada and Placer Counties a large amount of the revenues relates to downhill ski areas and associated lodging and winter activities which is a different sphere of influence than summer recreation activities. Tourism is an important aspect of the economy for many of the small towns within and adjacent to the Tahoe, Plumas, and Eldorado National Forests, as well as BLM and State Park lands. While history may be the major attraction for most of these towns, recreation activities related to the outdoors in general and rivers in particular is an additional attraction. In some cases the river attractions are a supplemental activity that may keep a tourist an extra day in the area. In many cases tourists are drawn to a particular river to pursue river-recreation activities as their primary goal. State Parks estimates that 7,423,000 dollars are spent in the local communities from the 742,275 recreation visits to the South

Yuba River. The dollar amount is based on the estimate that an average of $10 per visitor day is spent in the local communities.

In summary, tourism is an important aspect of the local economy for several communities within the sphere of interest for this study. Sierra City, Downieville, North San Juan, Nevada City, Grass Valley, Washington, and Foresthill are the towns most effected.

Sierra Nevada Counties Travel Impacts, 1993
Table IV-6

County	Travel Expenditures	Employment Payroll	Jobs	Tax Receipts Local	State
Nevada	$174,995,000	$29,963,000	2,298	$2,310,000	$11,705,000
Placer	$478,307,000	$78,772,000	6,534	$7,140,000	$30,461,000
Plumas	$123,396,000	$19,160,000	1,957	$5,393,600	$7,915,000
Sierra	$31,172,000	$5,245,000	395	$304,000	$2,006,000
Yuba	$73,632,000	$13,284,000	1,154	$578,000	$3,517,000

From a social aspect the dollars generated from tourism help support people pursuing a rural lifestyle in local communities. In addition, the river settings and recreation facilities provide enhanced recreation opportunities for both local people as well as tourists who travel from more distant cities. The wide range of outdoor recreation opportunities, including river recreation, is part of the quality of life for local communities.

Utilities in this case represents the various developments and activities of water and utility districts. Dams for power and irrigation and the associated power generation, power lines, irrigation ditches, small hydroelectric projects, and assorted improvements are all part of the utility industry. These activities are reported in combination with other activities in the individual county employment statistics and, therefore, are difficult to separate. To get a general impression of the importance of these utilities, the cost of replacement of the infrastructure on the Forest will be reported by water districts. NID estimates that their infrastructure value for Bowman and Jackson Meadows Reservoir and the associated smaller Reservoirs, irrigation ditches, and power generating facilities is $200,000,000. This figure represents just the infrastructure replacement values and does not include the value of the water off site that is used for domestic consumption, industrial use, irrigation and flood control. All these offsite uses represent significant additional value and benefits.

Pacific Gas & Electric (PG&E) estimates the infrastructure costs for the Drum-Spaulding project to be $140,000,000. The replacement cost could be close to one billion dollars. This includes Spaulding Reservoir and its power-generating facilities as well as several smaller reservoirs, canals, and power lines. The water from this project provides power generation of 904,300,000 kilowatt hours of energy annually, which is equivalent to serving around 82,000 homes for a year. In addition the water is used for irrigation, agriculture, domestic use, and flood control. As a privately owned company, PG&E pays a one percent property tax on the facilities described above to state and local government. This results in over a million dollars annually in property taxes. Most of the State portion ends up returning to local communities in the form of State support for schools and other services.

Placer County Water Agency (PCWA) estimates the cost of replacement of their infrastructure investments for Hell Hole Reservoir and French Meadows Reservoir, along with the associated penstocks, power facilities, tunnels and smaller dams, to be in excess of one billion dollars. Water from their Middle Fork American River project generates 1,003,570,770 kilowatt hours annually. This billion-kilowatt hours serves approximately 90,000 homes for one year. In addition, the project provides irrigation water for agriculture, municipal water for industry and domestic consumption and also provides flood control benefits.

Yuba County Water Agency (YCWA) estimates their infrastructure replacement investments for New Bullards Bar Reservoir and associated improvements to be around one billion dollars. In addition to the infrastructure value, there is the value of power generation, flood control, and irrigation water supplies for agriculture. The actual value of flood control is not easily measured in just dollars and cents, but it is easy to understand that flood control is a very important value to Yuba County and to the communities prone to flooding along the Yuba and Feather Rivers. Agriculture is the most important economic activity in Yuba County and, therefore, the irrigation water represents a very high value to the community. New Bullards Bar Reservoir generates 1,245,900,000 kilowatt hours of electricity annually, which is the equivalent to serving around 100,000 homes for one year.

Several small communities such as the towns of Washington, Downieville, Goodyears Bar, and others have water systems for domestic consumption. An economic value has not been identified for these, but they are obviously quite important to the users of these water supplies

The cost of management for wild and scenic rivers is an economic factor for the Forest Service. In this study the estimated cost of management for each river is displayed in Appendix D and Table V-4, Cost of Designation under the environmental consequences for economics. Part of the cost of management is the development of a management plan for a designated river. In an alternative where several rivers are recommended some rivers could be addressed in one planning document so

costs could be reduced. The actual cost of alternatives for management is discussed under economic and social environmental effects.

Landowners and Land Use

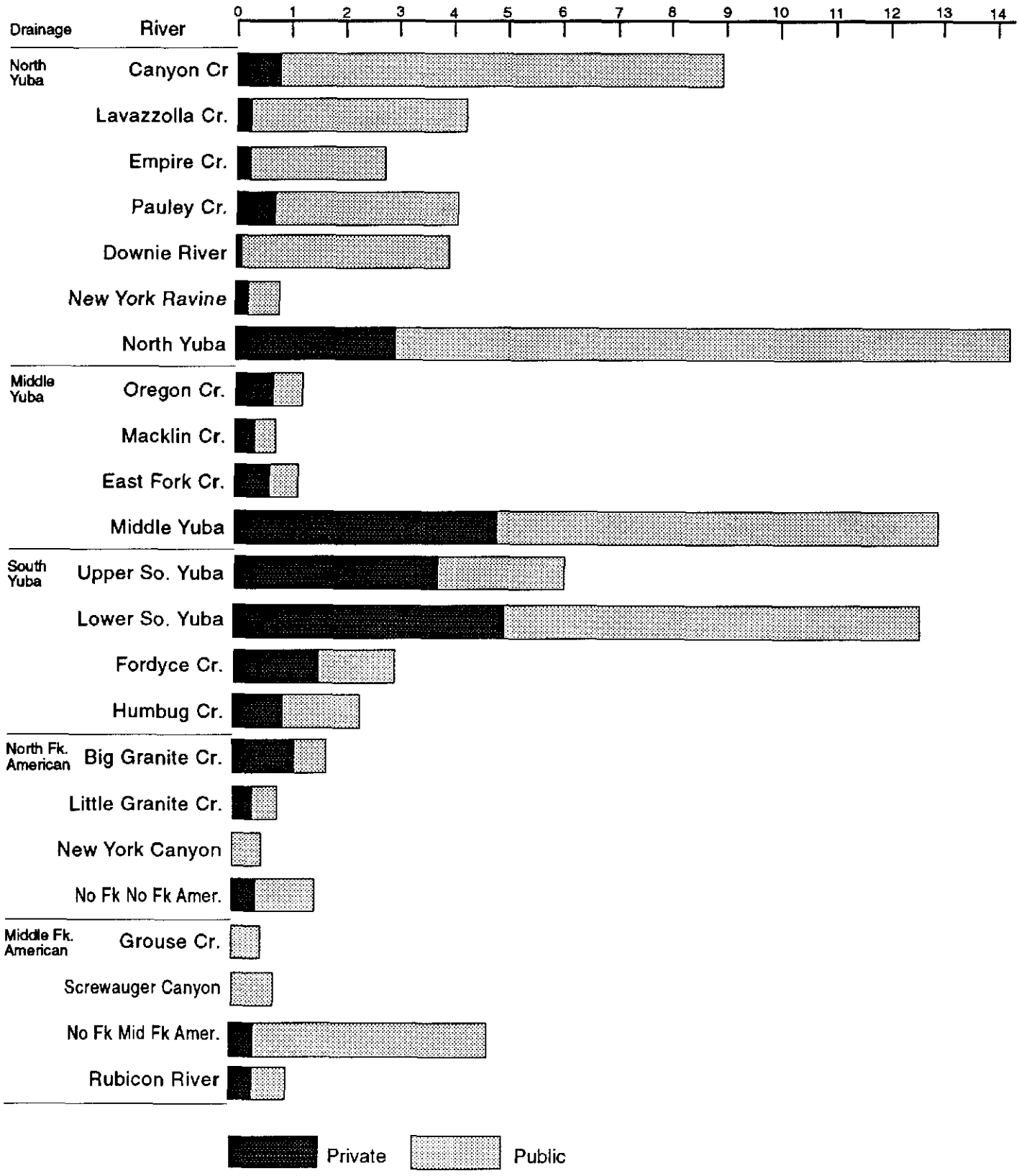
Private lands within the study area include large ownerships managed for timber production and grazing, and numerous small tracts currently developed for housing, recreational purposes, or held for future development. Sierra Pacific Industries, Sierra Pacific Power Company, and the Southern Pacific Railroad are the major landowners. A major utility corridor follows Inter-state 80 and includes major power and gas lines and the Southern Pacific Railroad. The utilities follow the South Yuba River from Indian Springs Campground to Soda Springs.

Public lands within the river study areas are managed primarily by the TNF and BLM. The Eldorado and Plumas National Forests also manage land along Canyon Creek and the Rubicon River. The State of California manages the Gold Mines District, a group of historic gold mines, as State Historic Parks within the study area. Malakoff Diggings State Historic Park is specifically within the study area. The same Park District also manages State Park lands along the South Yuba River. The California Department of Fish and Game manages thirty-one acres along Macklin Creek.

There are several communities along the study rivers with almost entirely private lands. Sierra City, Downieville, Goodyears Bar, North Bloomfield, Washington, and Cisco Grove are the main communities located along study rivers. Local zoning presently addresses land uses in these communities and would continue with or without wild and scenic river designation.

Landownership by River
in Thousands of Acres

Table IV-7



Heritage Resources

Knowledge of the time period preceding the coming of the first Euro-American settlers comes primarily from archaeological studies and ethnographic descriptions of the Native American groups. Archaeological studies indicate that people began to live in the study area about 8,000 years ago. With changing environmental conditions, the economic base for these hunters and gatherers required diversification so that by the time of Euro-American contact, the Washoe were dependent upon the wealth of fish resources found throughout the river corridors.

Historic occupation of the study area began with the use of the Emigrant Trail (which parallels the upper South Yuba River) by Euro-American settlers enroute to California from the east. The Emigrant Trail was a major passageway to the gold country during the 1849 gold rush. Gold mining has played a major role for the past 147 years within the river corridors. Historic mining camps, toll roads, and way stations are scattered throughout the river corridors. Specific cultural and historic resources are discussed in Appendix D, individual river descriptions.

Timber Resources

The American and Yuba River drainage corridors represents a broad range of plant communities. The long elevational change from the east to the west creates a variety of microclimates and soil types, encouraging such diversity. At the higher elevations near the headwaters of the North Yuba, Lavezzola Creek, Downie River, Canyon Creek, Empire Creek, Macklin Creek, Upper South Yuba River, and Screwauger Canyon, subalpine fir and mixed-conifer forests dominate. Mid and lower elevations support **mixed conifer forest**, oak woodland and mixed chaparral plant communities. There are also unique blocks of mixed-conifer old-growth forest intermingled in the Lavezzola Creek, Downie River, Pauley Creek, Empire Creek vicinity. The commercial forest within the river corridors are managed under regulation classes defined in the TLRMP. See table VI-8 for the amount of regulation class by river. The regulation classes are defined below:

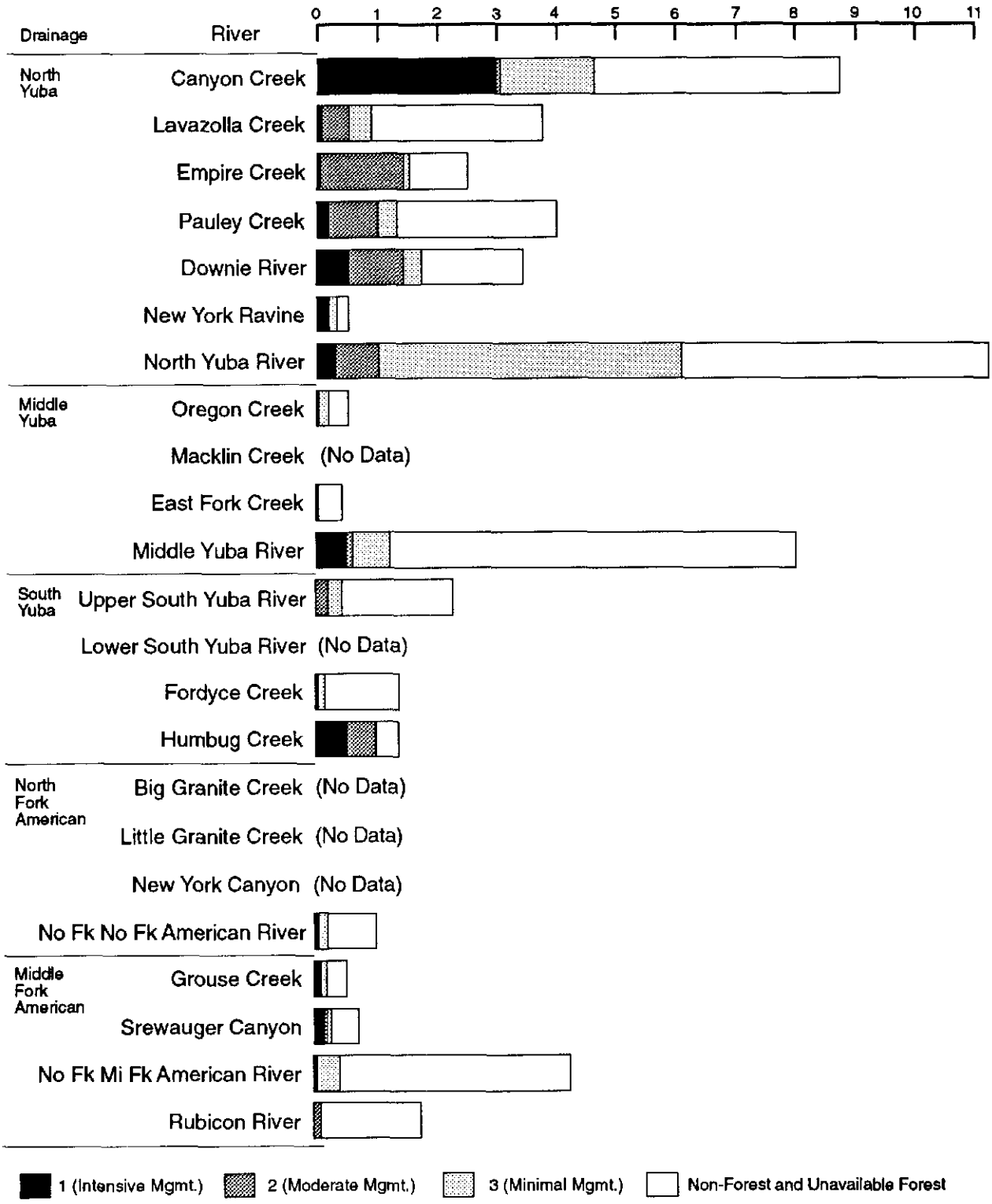
Regulation Class 1 - Lands are managed under even-aged management, with short rotations (50 to 100 years) and intensive management practices, plus other resource values and outputs.

Regulation Class 2 - Lands are managed to co-emphasize non-forest resources and even-age forest management. An example is even-age management on a long (150-year) rotation meeting partial visual retention requirements.

Regulation Class 3 Lands are managed to meet visual retention and drainage streamside management objectives. The forest cutting level is about five percent of the current inventory per decade.

Timber Mgmt. Regulation Class by River
in Thousands of Acres

Table IV-8



Wild and Scenic Rivers in the Region

There are several designated wild and scenic rivers on the west slope of the Sierra Nevada. The ten rivers are as follows.

Federal Agency	*River Name*	*Status*
Congress (FS)	North Fork American River	Wild
Congress (FS, PS)	North Fork Kern	Wild, Rec
Congress (FS)	South Fork Kern	Scenic, Rec
Congress (FS, PS)	Kings River	Wild
Congress (FS, PS)	South Fork Kings River	Wild, Scenic, Rec
Congress (FS, PS)	Middle Fork Kings River	Wild
Congress (FS, PS, BLM)	Tuolumne River	Wild, Scenic, Rec
Congress (FS, PS, BLM)	Merced River	Wild, Scenic, Rec
Congress (FS, PS)	South Fork Merced	Wild
Congress (FS)	Middle Fork Feather River	Wild

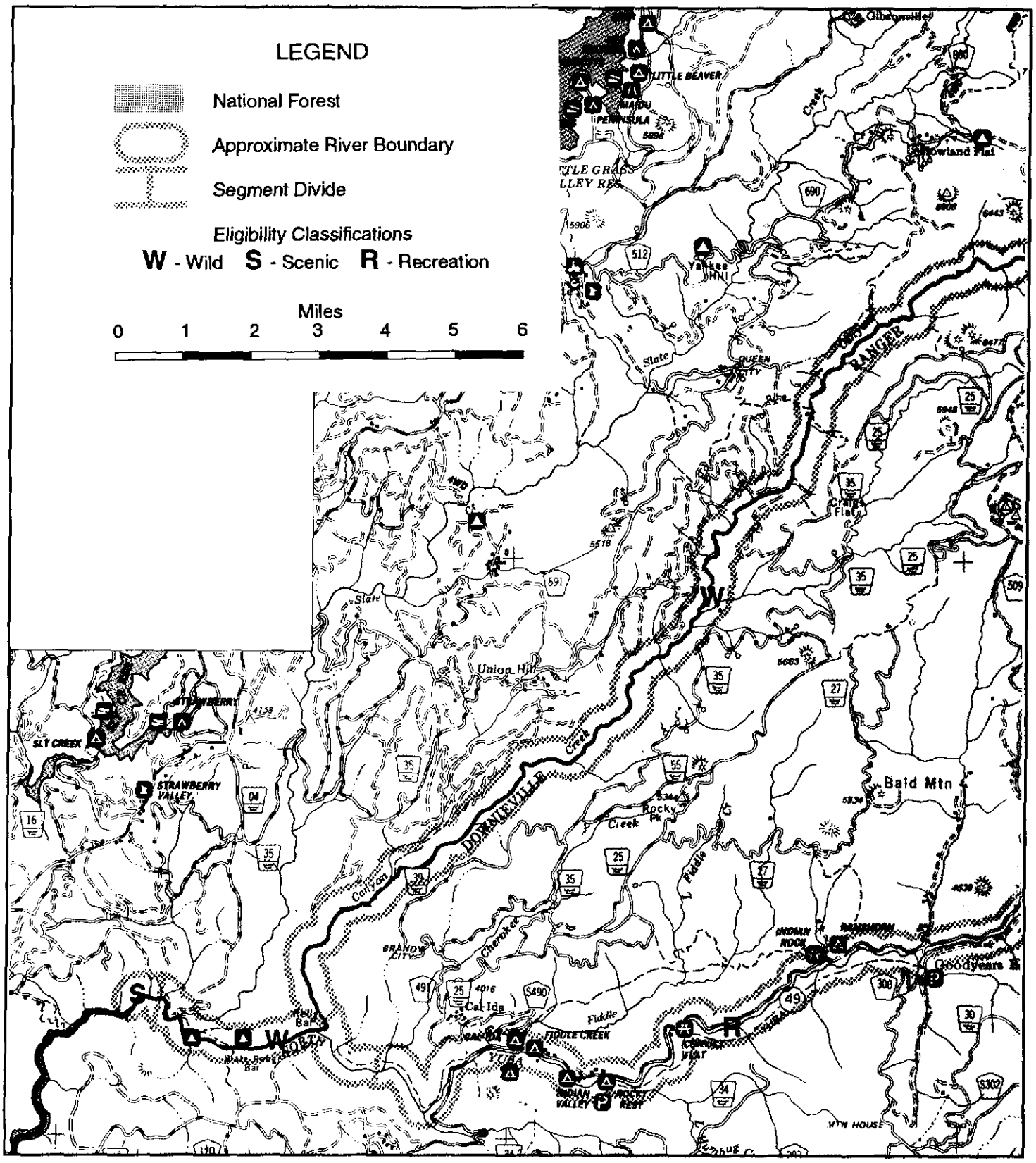
* NFS is USDA National Forest Service
* NPS is USDI National Park Service
* BLM is USDI Bureau of Land Mangement

Additionally, two other western Sierra rivers, the North Fork American and Lower American River, have been designated by California into the California State Wild and Scenic River System.

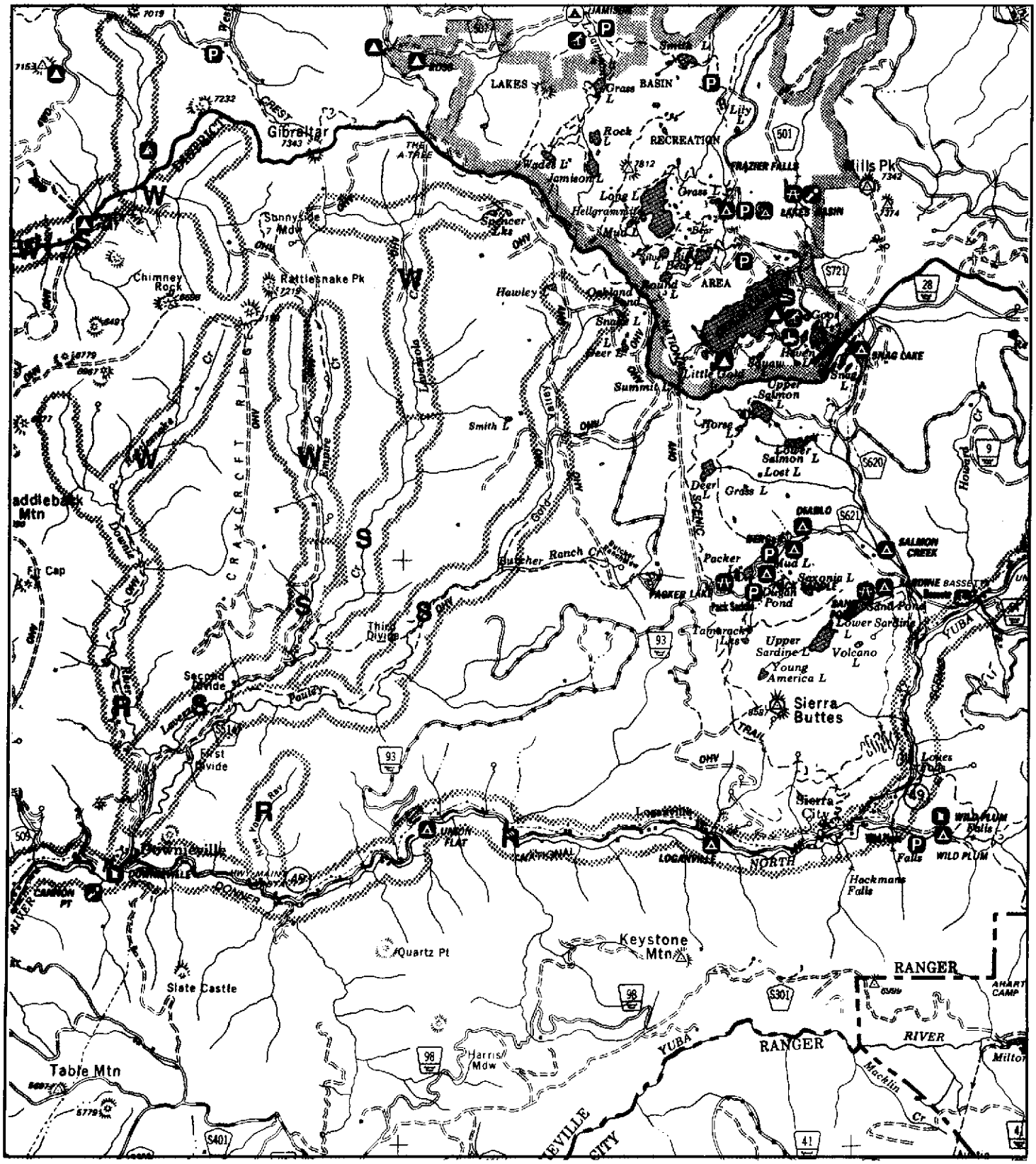
The following table lists those rivers recommended for wild and scenic status in the Forest planning process.

Federal Agency	River Name
Eldorado NF	NF Mokelumne River (lower)
	Rubicon (below Hell Hole Reservoir)
Sierra NF	San Joaquin River
	MF San Joaquin River
	NF San Joaquin River
	SF San Joaquin River
Stanislaus	NF Mokelumne River
	NF Stanislaus River
	MF Stanislaus River
	Deadman Creek River
	Kennedy Creek River
	Clark Fork River
	Niagara Creek
	Stanislaus River
	SF Tuolumne River
Lassen	Deer Creek
	Mill Creek
	NF/SF Antelope Creek

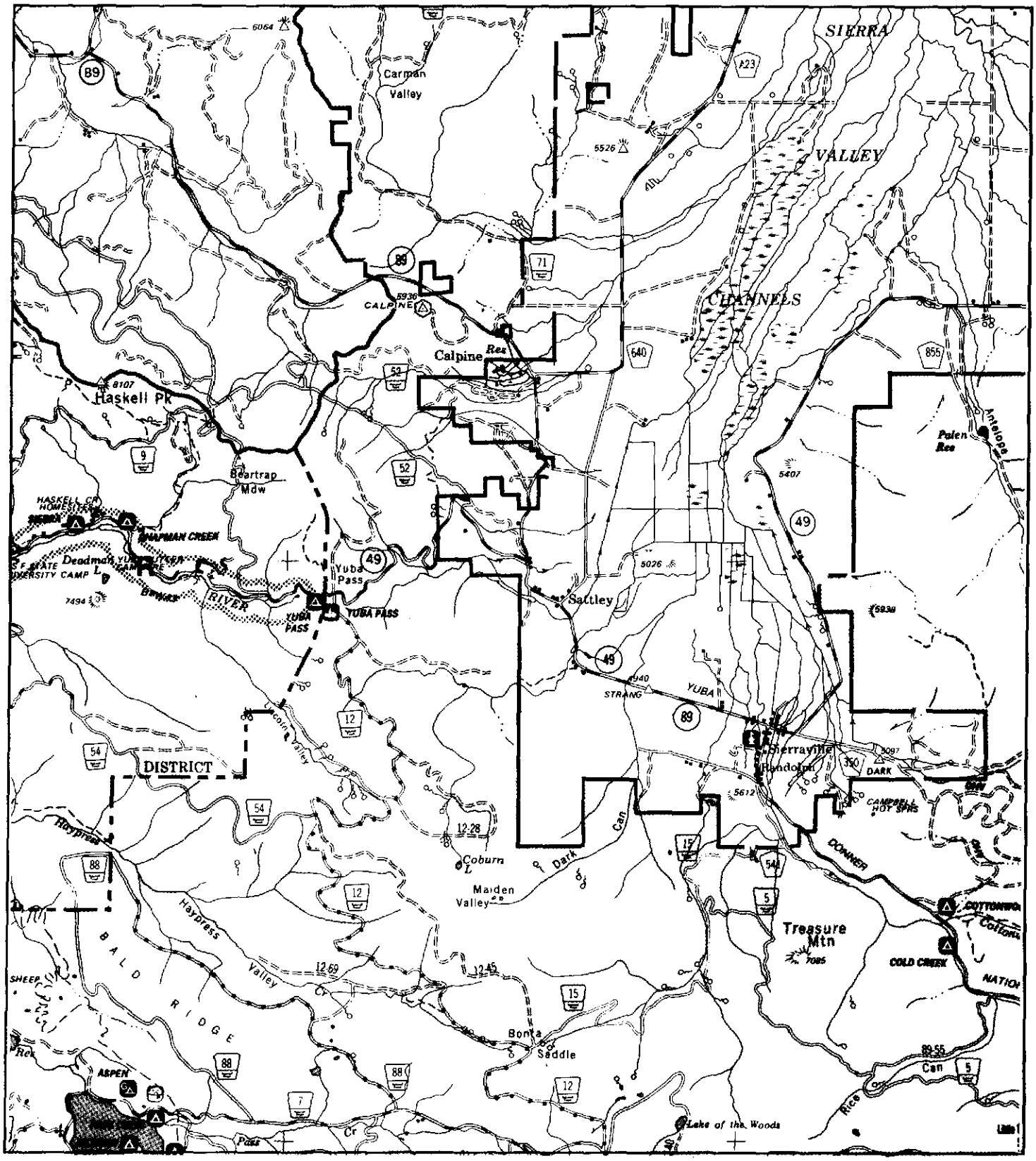
Eligibility Study Classification
North Yuba River Drainage Map 1



Eligibility Study Classification
North Yuba River Drainage Map 2



Eligibility Study Classification
North Yuba River Drainage Map 3



North Yuba River drainage

The North Yuba River drainage is located in the northern part of the TNF and the southern part of the Plumas National Forest. The eligible rivers within this drainage are:

Canyon Creek: Flowing from the west, north, and south branches to its confluence with the North Yuba River.

Lavezzola Creek: Flowing from Sunnyside Meadow and Spencer Lakes to its confluence with the Downie River.

Pauley Creek: Flowing from Hawley Lake and Snake Lake to its confluence with the Downie River.

Empire Creek: Flowing from Red Oak Canyon and Empire Creek-headwaters to its confluence with the Downie River.

Downie River: Flowing from Rattlesnake Creek and the West Branch of the Downie River to its confluence with the North Yuba River.

New York Ravine: Flowing from its headwaters to its confluence with the North Yuba River.

North Yuba River: Flowing from Yuba Pass to its impoundment by New Bullards Bar Reservoir.

Canyon Creek, Lavezzola Creek, New York Ravine, Empire Creek, Pauley Creek, and the Downie River all feed into the North Yuba River. The drainages are located exclusively in Sierra County. There are a combined total of 38,962 acres within the rivers corridors. This equates to 49 miles of wild river, 29 miles of scenic river, and 49 miles of recreation river (the majority of the recreation miles are attributed to the North Yuba River).

The North Yuba drainage is situated at the confluence of the Washoe, Nisenan and Northern Maidu territory and is in the heart of the Northern Mines. Gold mining started along the major rivers and their tributaries in 1849. Early demand for sawtimber resulted in harvesting a large portion of the drainage (especially around the town of Downieville). Ranching and logging supported the mines and mining communities in the drainage but, in later times, logging became the primary industry for the region. The main access into the drainage is Highway 49, which parallel's much of the North Yuba River. There are numerous unimproved dirt roads which network through the drainages that are primarily used for mining. Access into Canyon Creek can be obtained using two four-wheel-drive dirt roads. Both roads

lead into the Poker Flat area from both sides of the river. The remainder of the canyon is steep and access is difficult.

The majority of human activity centers along Highway 49; at the bottom of the North Yuba River canyon. There are three small towns located along Highway 49; Goodyears Bar, Downieville, and Sierra City. Downieville, Sierra County's seat of government, is a full-service community whose main economic base is government, mining, logging, and tourism. Goodyears Bar and Sierra City are much smaller, relying primarily on tourism. The majority of people who live within the drainage reside within or adjacent to these towns. There are a few small mining cabins and residents located adjacent to the dirt roads within the drainages.

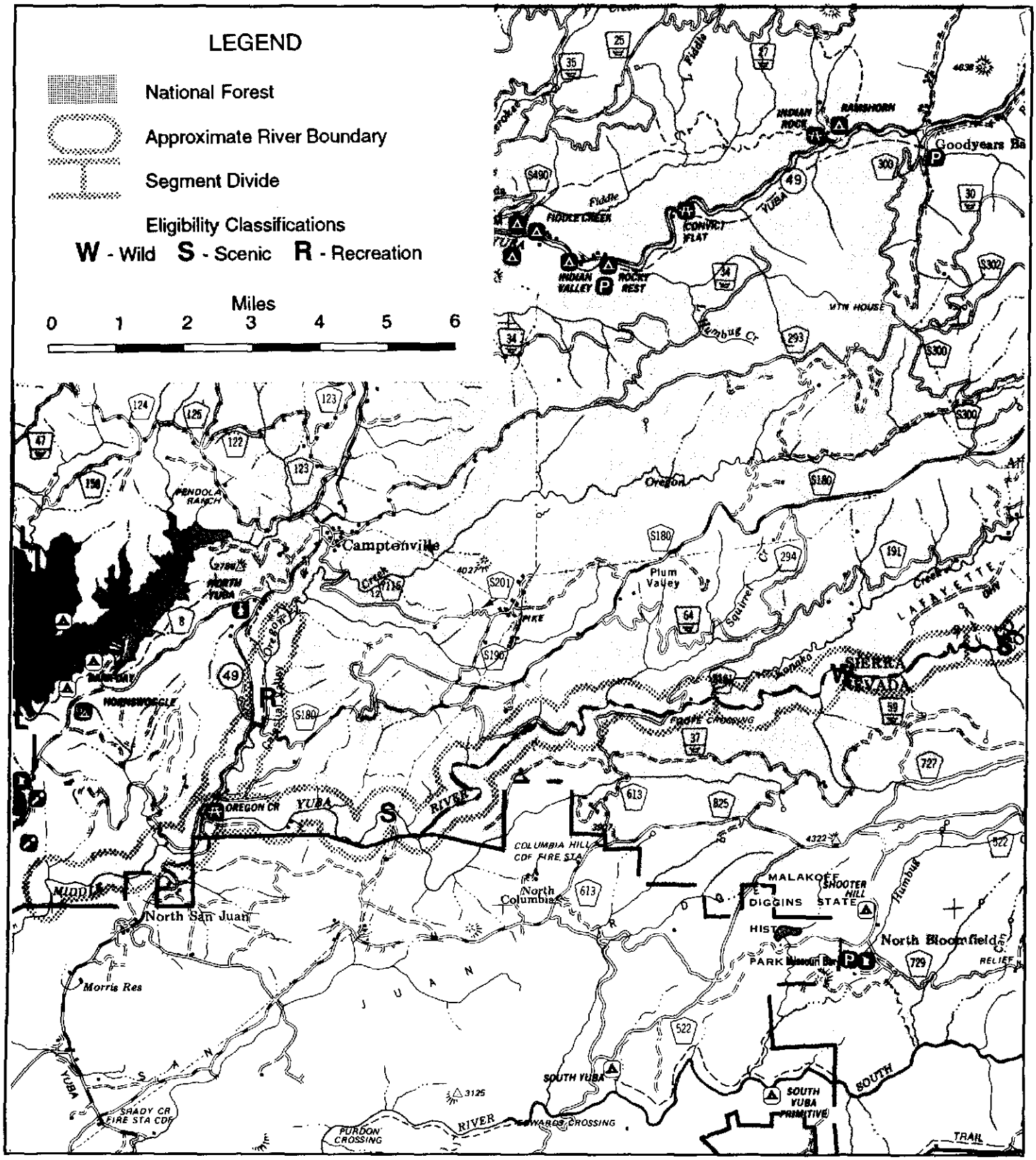
Recreation activities within the drainage center around the North Yuba River corridor. During the winter the upper North Yuba River corridor at Bassetts Station is a snow-play area; snowmobiling, nordic skiing, and sledding are popular activities. In the summer season swimming, rafting, fishing, mountain biking, camping, and picnicking are favorites within the river corridor. There are 15 developed campgrounds along the North Yuba River. These sites are filled during the summer months. Three rafting companies provide white water rafting guide service. With the exception of Canyon Creek, there are trails that network throughout the drainages, which are popular for hikers, miners, fishermen, motorcyclists, and mountain bicyclists.

The visual quality in this drainage is high. All the eligible streams have attractive riparian zones, good water clarity, a variety of water features, and well-defined canyons. Canyon Creek and the North Yuba River have the broadest range of stream features, steep canyons, and rugged rocky character. The landscapes are diverse with steep river canyons and high flat ridges. This landscape hosts ecologically diverse plant communities including riparian, mixed-conifer, and subalpine species. The river corridors and surrounding ridges north of Downieville contains some unique large blocks of old-growth forest. The old-growth forest provides recruitment of large, wood debris to stream environments. There are no other large, unroaded, ecosystems in the general region (Plumas, Eldorado, Lassen, and Tahoe Natonal Forests) that provide the same dendritic stream pattern as the old-growth ecosystem surrounding the Empire, Downie, Lavezzola, and Pauley drainages in the North Yuba River system. Forest sensitive and watch-list plant species *Taxus brevifolia* and Forest Service sensitive species *Lewisia cantelovii* are located within New York Ravine, North Yuba River, Lavezzola Creek, Pauley Creek, and Canyon Creek corridors. There are no known threatened or endangered wildlife species located within the river corridors. Pauley Creek, Lavezzola Creek, Empire Creek, and the Downie River hosts the largest concentration of California spotted owl populations in the Forest. There is great potential for other watch-list and sensitive plant species along the river corridors (some corridor areas have not been surveyed).

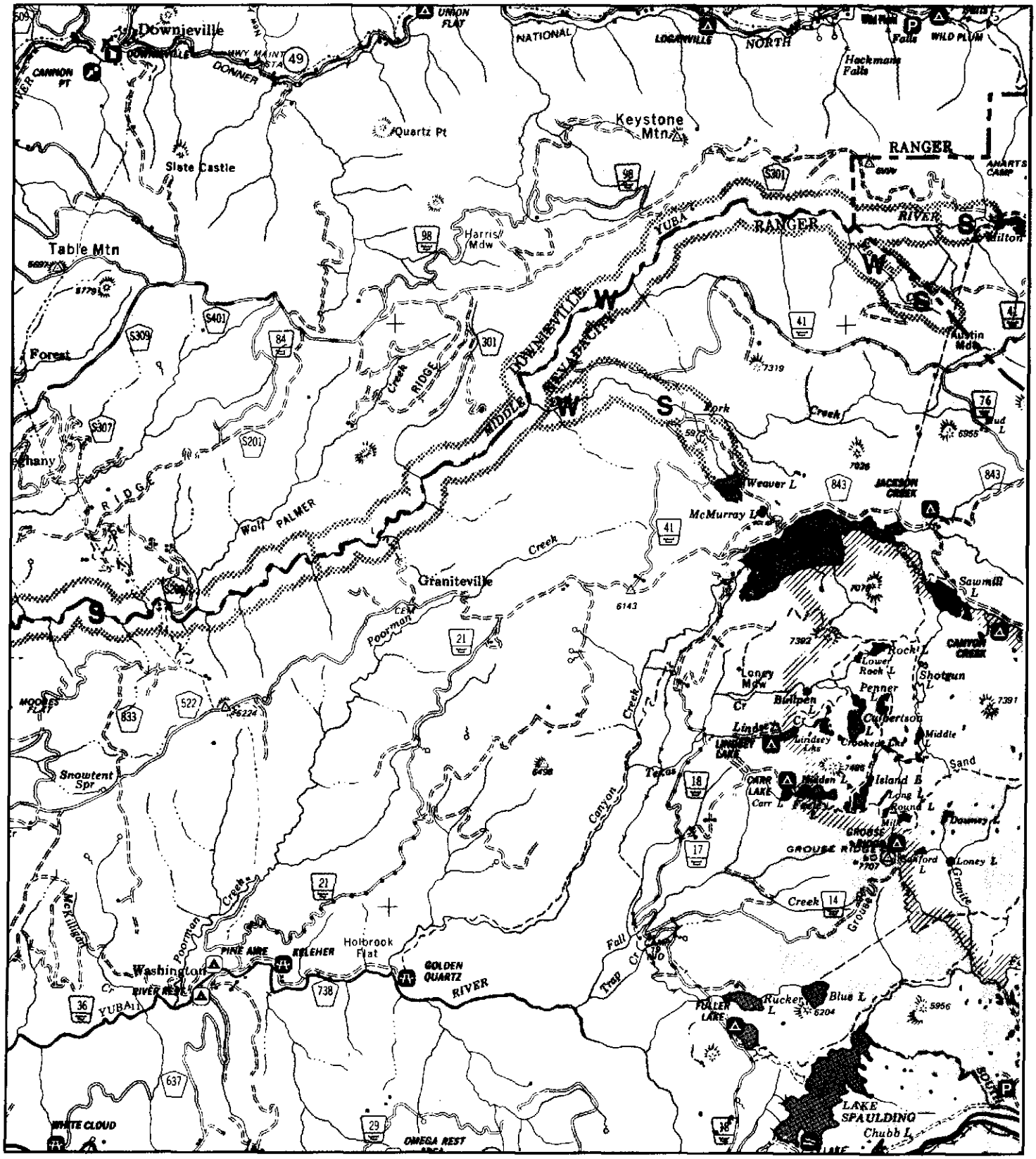
The drainage supports healthy populations of both native and non-native fish species. Kokanee have been known to migrate into the river from Bullard's Bar Reservoir, but they are not known to spawn in the river. Lavezzola Creek has been designated by the CDF&G as a "Wild Trout" stream. The North Yuba River from Sierra City to Ladies Canyon Creek has been designated by the California Department of Fish and Game "special regulation" river segment. The large deep plunge pools in the upper reaches of the rivers are excellent fish habitat.

Wildlife is abundant and diverse within the North Yuba drainage. There are many areas of high-quality late-successional forest habitat, including large blocks of old-growth forest. Bald eagle and peregrine falcon, two Federally listed endangered species, have been observed in the drainage, and high-quality bald eagle habitat occurs along Canyon Creek. A wintering population of bald eagles is known to occur along the Downie River. Forest Service sensitive species that have been sighted in the drainage include: northwestern pond turtle, northern goshawk, California spotted owl, willow flycatcher, and marten. There is a large concentration of spotted owls in the area around Downie River, Pauley Creek, Lavezzola Creek, Empire Creek, and New York Ravine. Additionally, suitable habitat exists for the Federally proposed California red-legged frog and Forest Service sensitive great gray owl, Sierra Nevada red fox, and Pacific fisher. Three federal category 2 (*Goeracea oregona*, *Farula praelonga*, and *Neothremma genella*) caddisfly species are known to inhabit New York Ravine. Category 2 species are those for which existing information indicates a threatened or endangered listing may be warranted, but for which substantial biological information to support a proposed rule is lacking. Other wildlife species observed in the area include: mountain yellow-legged frog, foothill yellow-legged frog, pileated woodpecker, golden eagle, sharp-shinned hawk, snowshoe hare, and mountain lion. There have been unconfirmed sightings of wolverine in the higher elevation areas, and there is suitable wolverine habitat in the drainage. Canyon Creek and North Yuba River are probably important movement corridors for wildlife. Canyon Creek presently has a few primitive roads within the half-mile corridor boundary. There are numerous foot trails within the drainage with no water diversions or development. The Downie River has primitive access, no water diversions, and seasonal mining. These factors preserve wildlife resource values. There are some private landholdings and an access road along Lavezzola Creek, but this does not diminish the creek's wildlife values. The area around Downie River, Pauley Creek, Lavezzola Creek, Empire Creek, and New York Ravine has exceptional outstandingly remarkable wildlife and ecological values. This area has the largest block of contiguous late-successional mixed-conifer forest on the TNF and is largely unroaded, making it an important refugium for species associated with large blocks of late-successional habitat and species intolerant of management activities. Additionally, this area has many known threatened, endangered, and sensitive wildlife species, has abundant habitat for these species, and, overall, is biologically very rich.

Eligibility Study Classification
Middle Yuba River Drainage Map 1



Eligibility Study Classification
Middle Yuba River Drainage Map 2



Middle Yuba River drainage

The Middle Yuba drainage is located in the middle section of the TNF. The eligible rivers within the drainage are:

Macklin Creek: Flowing from the headwaters to its confluence with the Middle Yuba River.

East Fork Creek: Flowing from Weaver Lake to its confluence with the Middle Yuba River.

Oregon Creek: Flowing from High Point Ravine to its confluence with the Middle Yuba River.

Middle Yuba River: Flowing from Milton Reservoir to the TNF administrative boundary at Klensendorf Point.

The northern portion of the Middle Yuba River drainage is within Sierra County while the southern portion is within Nevada County. There are a combined total of 16,324 acres within the river corridors, which equates to a total of 4 miles of recreation river, twenty-five miles of scenic river, and twenty miles of wild river.

The Middle Yuba River drainage is located in the area of the Northern Mines. Gold mining started along the Middle Yuba and its tributaries around 1849. Mining continued sporadically in the drainage through the early 1900s, with a marked increase in the 1930s, during the depression. An important transportation route is the Henness Pass Road, which dates back to 1849. The types of cultural sites within the drainage are mining features, communities, cemetaries, ranches, way stations, sawmills, trails, roads, and ditches.

Prehistoric occupation of the Middle Yuba drainage was by the Nisenan. It is possible that the upper portions, along Macklin Creek, could have been used by the Washoe as well.

Access into the drainage is limited. Primary access into the upper reaches of the Middle Yuba drainage is by the Henness Pass Road. Another access point is the Highway 49 bridge at the Oregon Creek confluence. The third access point is at Foote Crossing southwest of the towns of Alleghany and Columbia Hill. There are numerous unimproved dirt roads above the river canyon. The river canyon is extremely steep in the upper portions and not accessible by road. The river canyon from Mohawk Ravine to Milton Reservoir was included in the Forest Service, 1971 RARE I study as the Middle Yuba River Roadless Area. This stretch of river is extremely remote containing numerous box canyons.

The majority of human activity and developed structures within the drainage are centered around the small gold mining towns of Alleghany and Forest City, as

well as the Oregon Creek Recreation Area. Alleghany is a small residential town whose main employer is the famous quartz gold mine the Sixteen-to-One. Forest City is another small residential town just north of Alleghany. The Oregon Creek Recreation Area is a Forest Service day-use area. The main attraction at Oregon Creek is a covered bridge which is listed on the National Register of Historic Places. Recreational activities such as swimming, picnicking, and walking trails take place around developed recreation sites. Other remote recreation activities, within the drainage, include recreational mining, backpacking, fishing, hiking, mountain biking, and hunting. Because of the limited access within this drainage the recreation use in dispersed areas is generally light. The visual quality varies within this drainage. The Middle Yuba River canyon has been identified as having outstanding scenic values. Because of the strong spatial definition of the canyon, dramatic box canyons, and a variety of water features. The eligible tributaries to the Middle Yuba have moderate to high scenic quality with much smaller canyons, and more gentle terrain. East Fork Creek has one dramatic waterfall near the outlet of Weaver Lake.

The drainage contains volcanics on the ridgetops and upperbanks, and meta sediments on the lower banks and stream channels. Most of the river corridors provide a uniform plant and wildlife habitat type, confined by steep inner gorges and several box canyons.

The vegetative areas within the river corridors includes a variety of chaparral, foothill woodland, mixed-conifer, and subalpine plant species. There are patches of mixed-conifer old growth within the Middle Yuba River corridor. There are known occurrences of Forest watch-list and sensitive species *Viola tomotosa*, *Lewisia cantelovii*, *Silene invisa*, and *Taxus brevifolia* as well. There are no other known sensitive or watch-list plant species within the river corridors. However, there is a high potential for sensitive plant occurences due to the abundance of unsurveyed potential habitat.

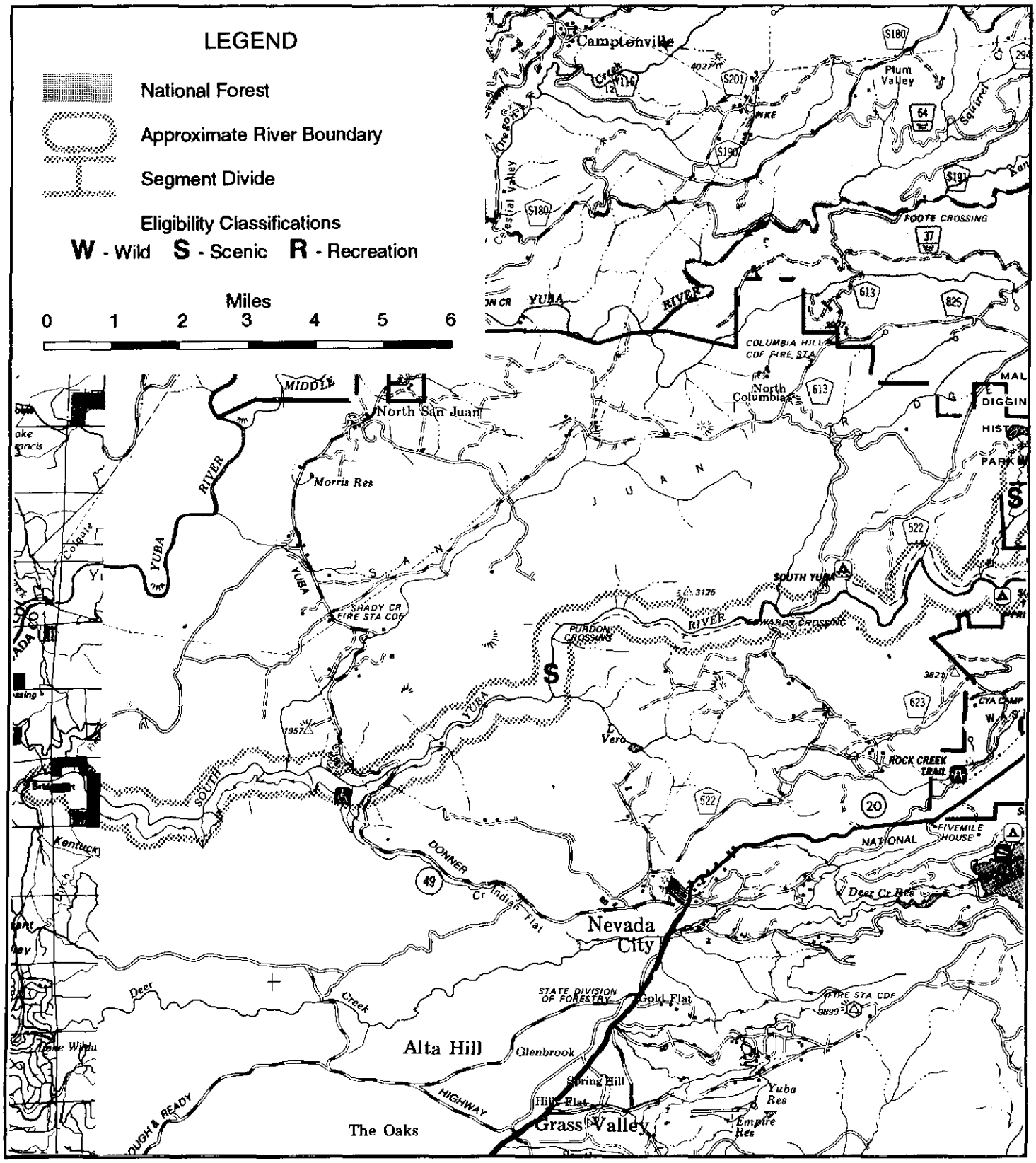
Large plunge pools and long, deep scour pools are numerous within the eligible rivers corridors. The drainage widens in the lower reaches where it approaches the confluence with Oregon Creek. Vibrant populations of both native and non-native trout species are found throughout. The fish populations thin out in the lower reaches of the drainage where sucker and squawfish are abundant. Macklin Creek has high-quality habitat for willow flycatchers, and has a very low level of public use, which contributes to the value of its wildlife habitat.

The Middle Yuba drainage contains habitat for a variety of wildlife species. There are high-quality riparian habitats and areas of old-growth forest. The federally endangered bald eagle occurs in the area, and suitable habitat for the federally endangered peregrine falcon exists in the drainage. Forest Service sensitive species that have been sighted in the drainage include: northern goshawk, California spotted owl, Sierra Nevada red fox, and marten. In addition, suitable habitat exists for the Federally proposed California red-legged frog and Forest Service sensitive northwestern pond turtle, great gray owl, willow flycatcher, and Pacific fisher. There

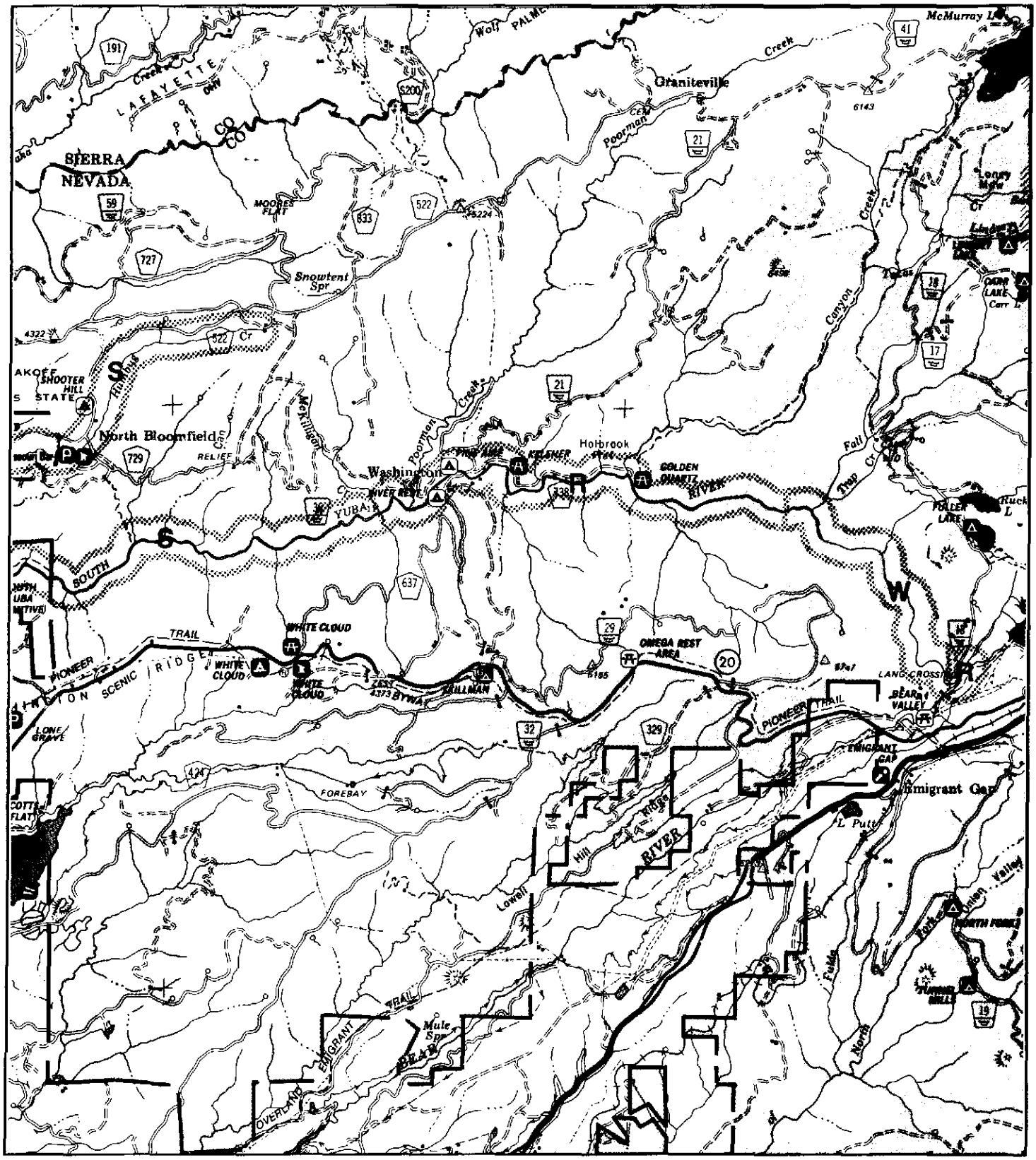
is a historical golden eagle nest in the drainage, and foothill yellow-legged frogs have been observed.

The drainage is located in the north central portion, or Northern Mines region, of the "Mother Lode" (a belt of auriferous gravels). Historic and active mining operations are abundant. Dredge mining is a popular activity on the Middle Yuba River and its major tributaries. The Sixteen-to-One quartz gold mine is one of the most successful gold-bearing mines in the United States. Other land-use activities include cattle grazing in the upper reaches of the Oregon Creek and Kanaka Creek drainages. Historic and contemporary timber operations also take place within the drainage with Sierra Pacific Industry being the primary private commercial timberland holder.

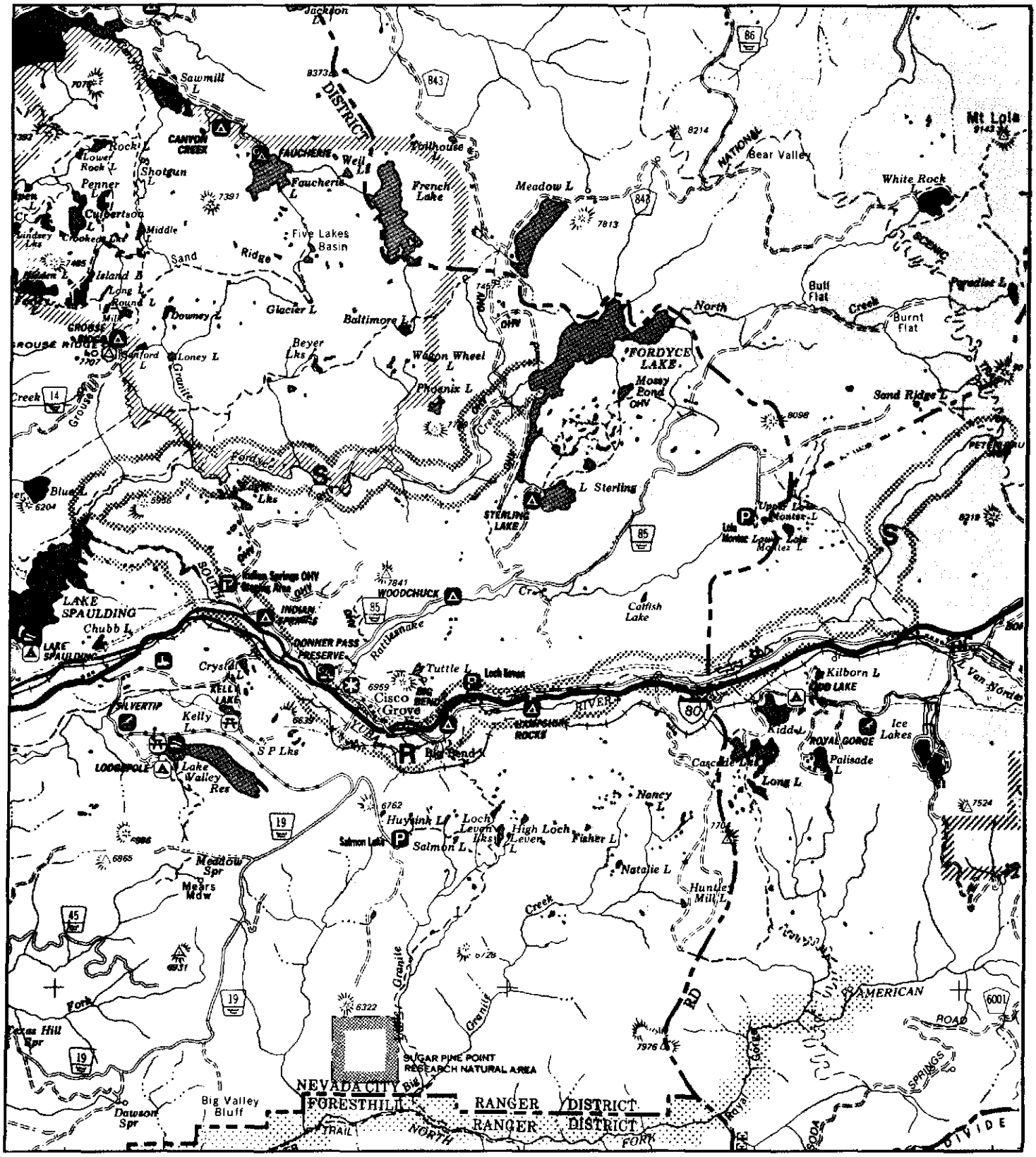
Eligibility Study Classification
South Yuba River Drainage Map 1



Eligibility Study Classification
South Yuba River Drainage Map 2



Eligibility Study Classification
South Yuba River Drainage Map 3



South Yuba River Drainage

The South Yuba River drainage is located in the central-western portion of the TNF and on BLM Lands. The eligible rivers within this drainage are:

Fordyce Creek: Flowing from Fordyce Lake to Lake Spaulding.

Humbug Creek: Flowing from its headwaters above Malakoff Diggins State Historic Park to its confluence with the South Yuba River.

South Yuba River: Flowing from the Peter Grubb Hut on Castle Creek to Lake Spaulding and from Langs Crossing to the historical covered bridge at Bridgeport.

The vast majority of the drainage is located within Nevada County, although the upper portion is under Placer County jurisdiction. There is a combined total of 24,044 acres within the river corridors, which equates to twenty-two miles of recreational river, fourty-nine miles of scenic river, and 5 miles of wild river.

The South Yuba River drainage has historically been a major mining district and transportation route. The first documented crossing of the northern Sierra Nevada mountain range occurred near the headwaters of the South Yuba River by the Stephens-Murphy-Townsend Party in 1844. Later, this corridor became a major commerce route that was used by the railroad and pack trains. The South Yuba River and its tributaries were being placer mined by the 1850s. Hydraulic mining was the biggest commercial mining venture in the drainage between 1866 and 1884. Malakoff Diggings, currently a State Historic Park, was the largest hydraulic gold mine in the United States. The types of historic sites within the drainage include mining features, townsites, cemeteries, ranches, way stations, railroad grades for logging, bridges, sawmills, trails, roads, and ditches. Many of these historic features are now major recreation attractions along the South Yuba River.

The eastern part of the South Yuba drainage is situated near the boundary between the Washoe and Nisenan territories, while the remainder of the drainage is within the Nisenan territory.

The upper portion of the drainage is easily accessible as InterState 80 parallels the South Yuba River from Yuba Gap to Soda Springs. There are several developed spur roads which lead from the highway into residential and ski areas. The lower South Yuba River drainage is accessible by Langs Crossing, Edwards Crossing, Purdon Crossing, Highway 49, and the upper Pleasant Valley Road to Bridgeport. The South Yuba River is difficult to access in the upper reaches above the town of Washington with the exception of Langs Crossing.

The majority of the drainage is remote except for the bridge crossings where human activity is dense. In the upper South Yuba River drainage the Southern

Pacific Railroad, and the Southern Pacific oil and gas pipelines, parallel the South Yuba River from Yuba Gap to Soda Springs. High-voltage power-transmission lines parallel Inter-state 80. Developed recreation sites along the upper Yuba River include Indian Springs, Big Bend, and Hampshire Rocks Campgrounds. A private summer home tract is located at Big Bend alongside the river. There is a special-use permit for the Peter Grubb Hut issued to the Sierra Club at the headwaters of Castle Creek on the upper part of the South Yuba River. This drainage area is a major utility and transportation link between California and Nevada.

Private and public lands are dispersed in a checkerboard pattern throughout the lower South Yuba River drainage. Large tracts of private land within the river corridors belong to SPI. The balance of the private lands are patented claims or tract parcels, typically from 1 to 40 acres in size. These small parcels are primarily residential with secondary agricultural and forestry land uses. The greatest density of parcel tracts is located around the town of Washington. Washington is a small residential mining community which is located along the South Yuba River.

State Park officials estimate that the recreation use along the South Yuba River, on the BLM and State Parks portion, was about 670,000 visits to the river in 1992. Recreation use along the National Forest length of the South Yuba River is moderate. The main recreation activities are water play, swimming, picnicking, sun bathing, floating, fishing, hiking, wildlife observation, kayaking, equestrian use, panning and dredging for gold, overnight camping, and mountain biking. The water associated activities were the driving force behind indentifying the South Yuba River as outstandingly remarkable for recreation. These activities generally take place in the summer during low flows when the users can swim, sun bathe, and engage in a range of water play activities. The lower South Yuba has several major recreation attractions. The Independence trail is built on the historic Excelsior mining ditch and provides a level wheelchair-accessible trail parallel with the river. This trail is considered unique because it provides an accessible trail up to three miles long in a mountainous and forested setting. It is the first trail of its kind in California. The trail was built and is supported by the Sequoia Challenge non-profit association, volunteer efforts, and State Park grants. The trail provides a very popular destination for a wide range of the public and includes views of the river canyon and a tributary waterfall.

There are State Park lands (South Yuba River Project) located within the South Yuba River drainage. Malakoff Diggings State Historic Park is located along the majority of Humbug Creek. The main attraction of this park is the historic hydraulic diggings and the history associated with these activities. Structures within Malakoff Diggings State Historic Park and along Humbug Creek include the historic town of North Bloomfield and Park administrative facilities. This park is a popular destination spot for campers and hikers.

State Park lands at Bridgeport are a major attraction due the historic Bridgeport Covered Bridge. This bridge is the longest single-span wooden bridge in the west.

It was built in 1862, is on the National Register of Historic Places, is designated a California State Historic Landmark (#390), and is listed as a Registered Civil Engineering Landmark (ASCE). For a time, all freight shipped to Virginia City (Comstock silver rush) was transported across this bridge. State Parks provides interpretation, picnicking, hiking, and day use along the river at Bridgeport.

The major bridge crossings at, Highway 49, Purdons, Edwards, and Langs Crossing provide access for river play and enjoyment. The South Yuba trail has long been established as a popular scenic hiking, equestrian, and mountain biking trail which parallels the river for approximately 7.5 miles. As early as 1971 the South Yuba trail was officially recognized for having outstanding recreational opportunities for general public use when it was designated as one of the first seven National Recreation trails under the National Trails System Act of 1968. The South Yuba Trail provides easy year-round access to the numerous secluded beaches, swimming holes, cascading waterfalls, and smooth-rock outcroppings found along the river. These activities are generally enjoyed during a period of low flows which is consistent with the activities desired. In late summer and early fall gold panners and dredgers are evident throughout the river corridor. For those recreational gold dredgers that want to stay past the fourteen-day camping limit, BLM issues a recreation use permit. BLM, in the late 1960's, identified and designated the South Yuba River as a Special Use Area because of the recreational values that exist in the canyon. Public lands within the South Yuba River Recreation Area were withdrawn from mineral entry. The Forest Service provides two picnic sites upstream from the town of Washington. There is also a commercial campground adjacent to the town of Washington. The lower South Yuba below the Forest boundary is managed by the California State Parks and BLM. Overnight camping is available at the BLM South Yuba River Campground and at the South Yuba River and Humbug Creek primitive campsites.

The Lake Spaulding Dam, a major facility owned by the PG&E, is located one mile upstream from Langs crossing; it splits the South Yuba River into the upper and lower segments. The Spaulding dam is up for re-licensing in the year 2013. NID in cooperation with PG&E receives water from its reservoirs by way of Spaulding Reservoir. In the future NID wants to increase the height of Spaulding Reservoir to provide for more water storage.

The drainage landscape is diverse with deep pools, cascades, waterfalls, and exposed rock outcroppings. The scenic quality of the lower South Yuba River was identified as outstanding due to the spatial definition of the canyon and the wide variety of water features and rock features. Most of the upper South Yuba River is located in gentle terrain with occasional drops and features along the river. Fordyce Creek and Humbug Creek are smaller in scale but do have several nice waterfalls and plunge pools. The river is within a belt of steeply dipping metasedimentary and metavolcanic rocks of Paleozoic and Mesozoic age that lies between the granitic Sierra Nevada batholith to the east and overlapping sediments of the Great Valley province of Central California to the west. There are no known threatened

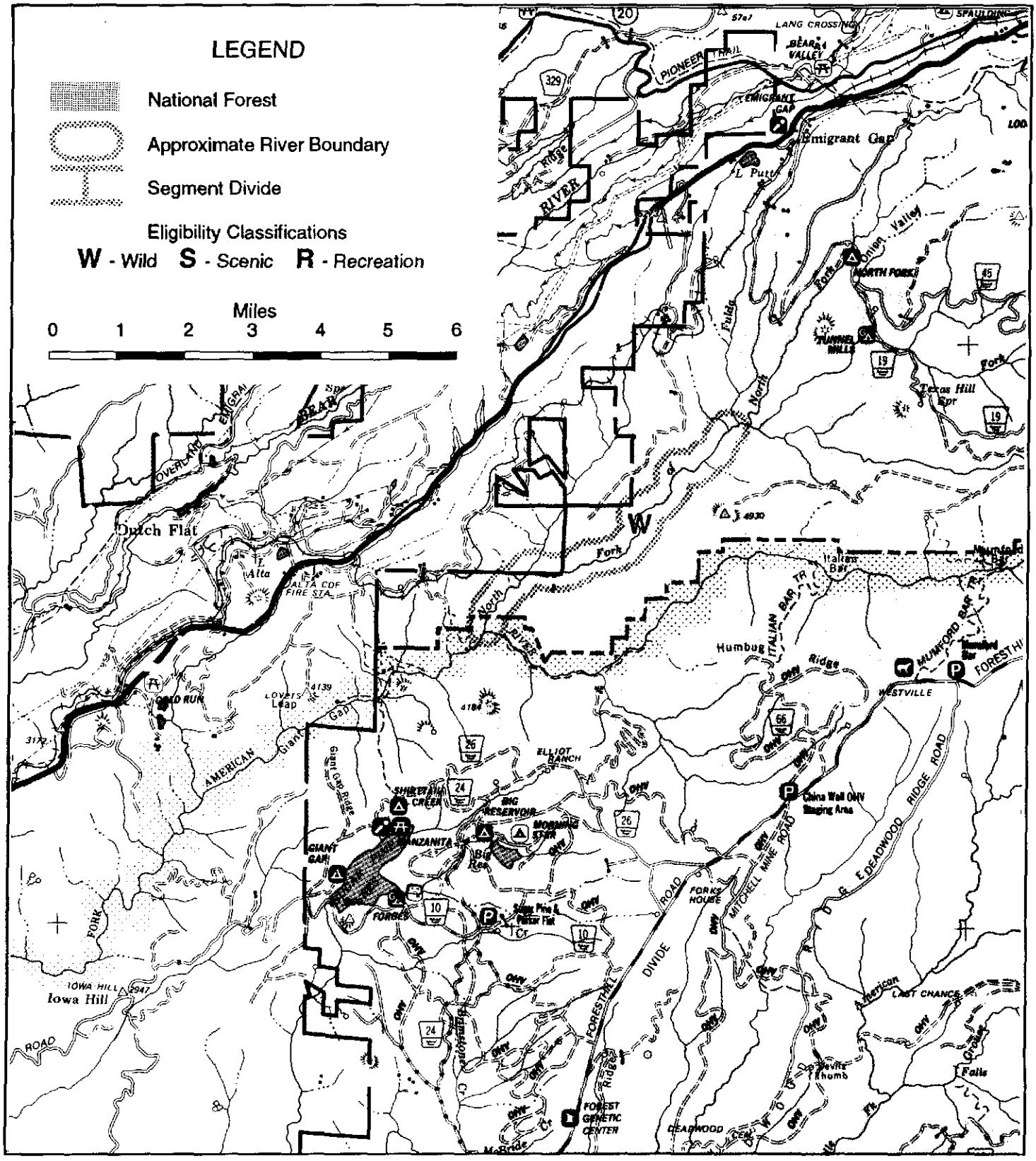
or endangered plant species along these rivers. The Forest Service sensitive plant *Lewisia cantelowii* is known to grow on the South Yuba River. TNF watchlist species *Taxus brevifolia* is known to occur along Humbug Creek.

There are no known threatened or endangered fish species. The lower South Yuba River supports both warm and cold-water fisheries. Four native and six introduced fish species are known to occur in the South Yuba River and its tributaries. The known native species are Sacramento squawfish, hardhead, Sacramento sucker, and rainbow trout. Introduced species include smallmouth bass, green sunfish, bluegill, brown bullhead, brown trout, and carp.

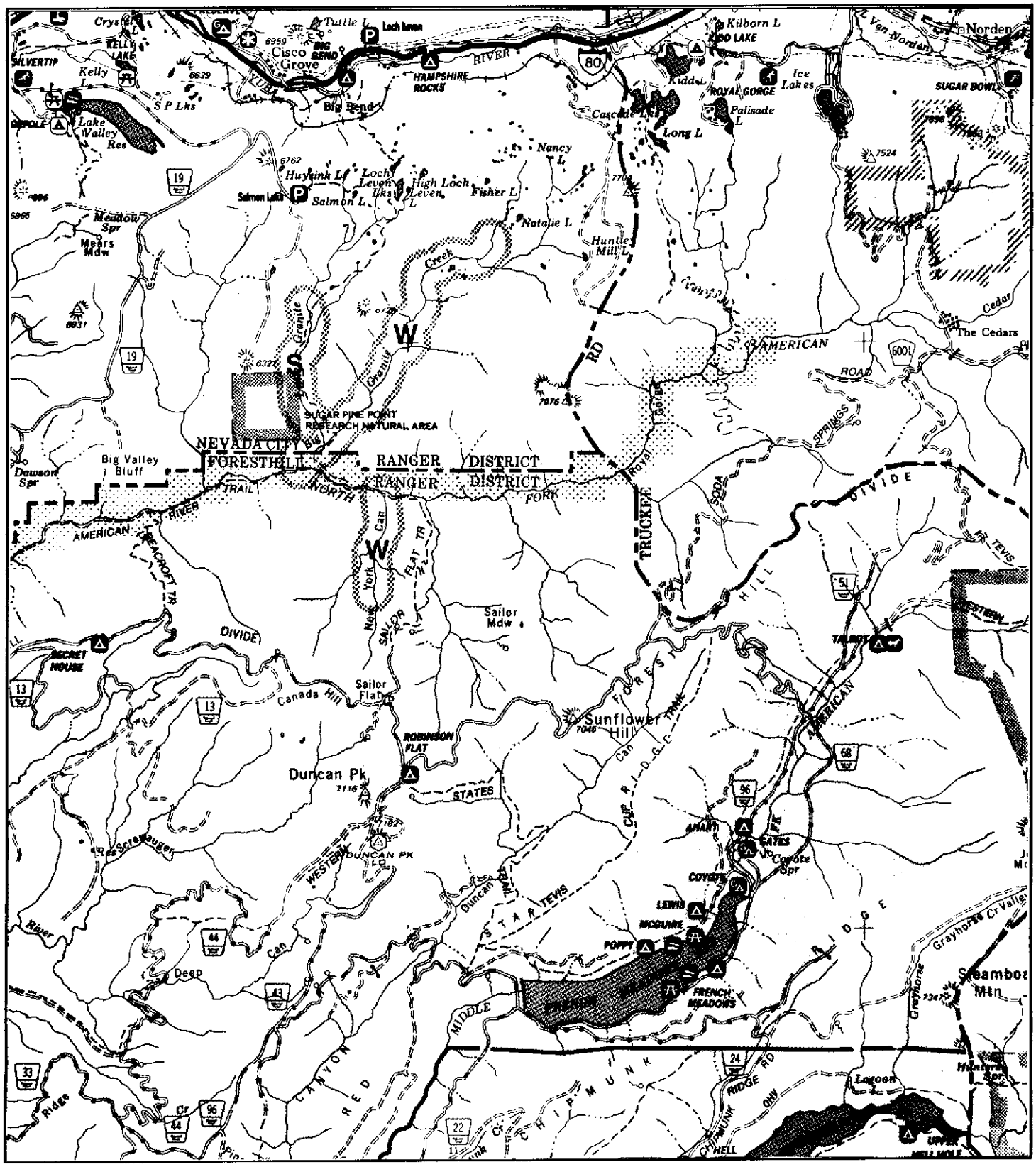
There are a variety of habitats for wildlife within the South Yuba drainage, including high-quality riparian-deciduous vegetation. The federally endangered bald eagle occurs in the area. Forest Service sensitive species that have been sighted in the drainage include: northwestern pond turtle, northern goshawk, California spotted owl, and marten. In addition, suitable habitat exists for the federally proposed California red-legged frog and Forest Service sensitive willow flycatcher, Sierra Nevada red fox, and Pacific fisher. Known populations of foothill yellow-legged frogs occur in the lower South Yuba River and Humbug Creek. The lower South Yuba is a key winter range for deer.

The South Yuba River below Spaulding Reservoir is located within the mineralized belt where both gold-bearing quartz veins and free gold deposits in tertiary gravels are most prevalent. An estimated 1.6 billion cubic yards of gold-bearing gravels were mined from ancestral Yuba River channels in this region. Over twenty million ounces of gold were recovered through mostly hydraulic and drift-mining methods from 1850 to the 1930's. Public lands below the TNF boundary were withdrawn from mineral entry. There are many mining claims on National Forest System lands with a wide range of placer and quartz-mining activities. Small motorized dredges are the predominant activity in this drainage. Many of the miners base their activities near or out of the town of Washington. Timber harvesting on both private and National Forest System land is a major land use within the South Yuba River drainage and continues to contribute to Nevada County's economy. Large acreages of private land are owned by large timberland companies and are intensively managed for timber products.

Eligibility Study Classification
North Fork of the American River Drainage Map 1



Eligibility Study Classification
North Fork of the American River Drainage Map 2



North Fork American River Drainage

The North Fork American River drainage is located in the southern part of the TNF. The eligible rivers within this drainage are:

Big Granite Creek: Flowing from Warm Lakes region to its confluence with the North Fork American River.

Little Granite Creek: Flowing from below Four Horse Flat to its confluence with the North Fork American Wild River.

New York Canyon: Flowing from its headwaters to its confluence with the North Fork American Wild River.

North Fork of the North Fork American River: Flowing from its branch confluence to its confluence with the North Fork American Wild River.

The drainage is located within Placer County jurisdiction. There are a combined total of 4,557 acres within the rivers corridors. This equates to 0 miles of recreational river, 2 miles or scenic river, and 13 miles of wild river. All of the eligible rivers within this drainage flow into the North Fork American Wild River, already included in the National Wild and Scenic River System.

Gold mining was the most common historic land use in this drainage, Europeans first migrated into the drainage following the discovery of gold in 1848. The types of historic sites in the drainage are mining features, communities, cemeteries, ranches, way stations, sawmills, trails, roads, and ditches.

The common boundary between the Washoe and Nisenan territories is the North Fork American River drainage.

The canyon walls are steep and the river corridors are rugged in character. Foot trails are the primary access into the eligible river corridors. There are several unimproved logging roads above the Big and Little Granite Creek segments. All four eligible rivers have steep canyon walls with steep stream gradients. Big Granite Creek has the deepest canyon and has similar character to the North Fork American River in its lower reaches. New York Canyon and the North Fork of the North Fork American River have a very attractive series of waterfalls and plunge pools. Little Granite Creek does not flow in a steep canyon until it drops off into the North Fork American River. Volcanics form the ridges and upper slopes, and metasediments form the lower slopes and stream channels. The North Fork of the North Fork American River supports a healthy rainbow trout population. In the lower reaches of New York Canyon, Big Granite Creek, and Little Granite Creek, rainbow and brown trout are abundant. The gradient of the streams is extremely steep in the upper reaches and less severe towards the streams confluence.

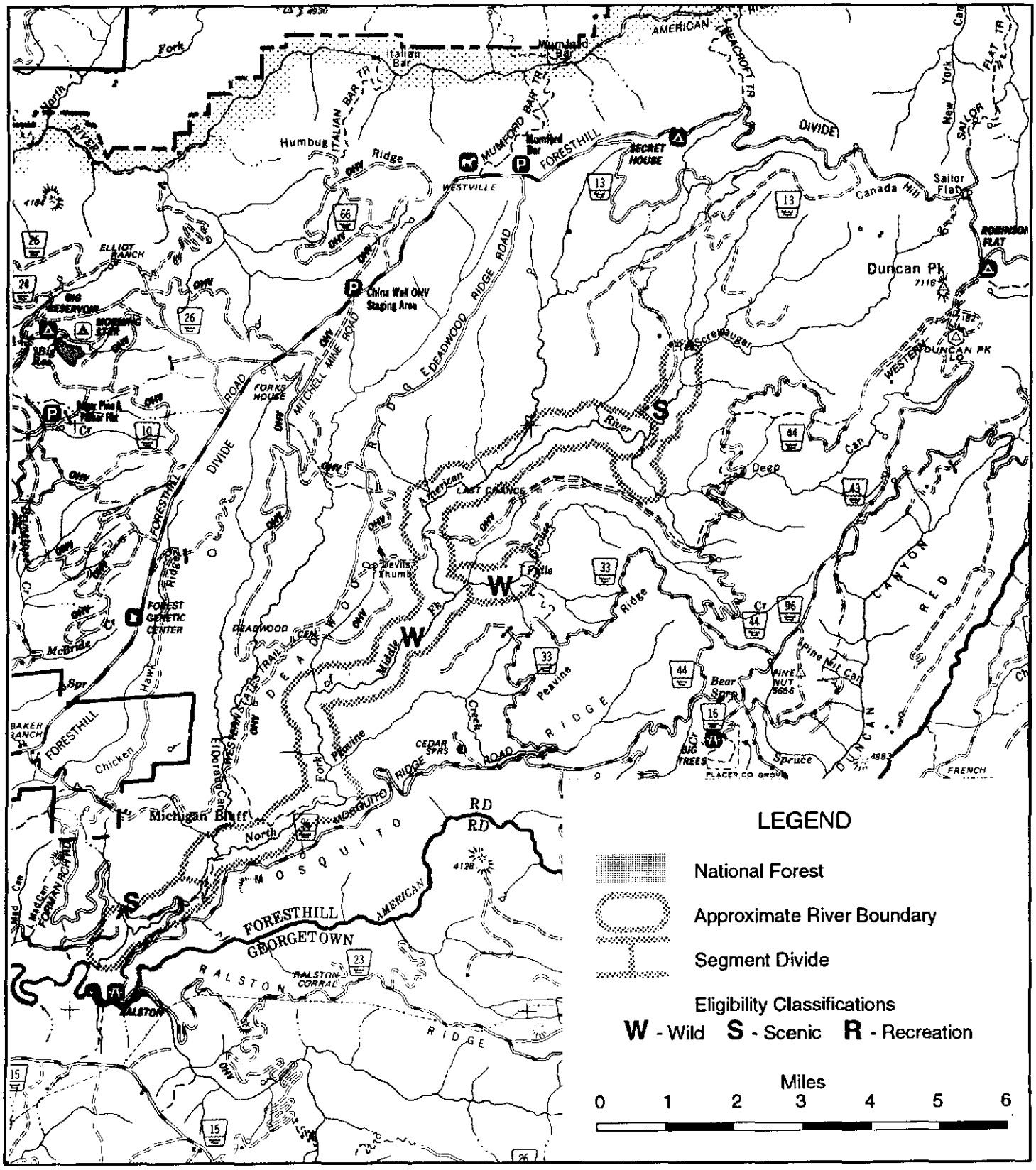
Recreation use such as picnicking, fishing, recreational mining, and hiking is centered around the trail access points. There are a few residents located along the rim of the North Fork of the North Fork American River. SPI is the largest commercial land holder within the drainage; They are actively logging their lands.

The plant life within the drainage includes riparian, foothill-woodland, and mixed-conifer species. There are small patches of mixed conifer old-growth in the Big Granite, Little Granite, and New York Canyon corridors. Portions of the Sugar Pine Research Natural Area (RNA) are found within and adjacent to the upper river corridor of Little Granite Creek. There are no known occurrences of sensitive or watch list plants or plant communities within the eligible river corridors. Plant surveys of potential habitat have not been done within portions of the corridors.

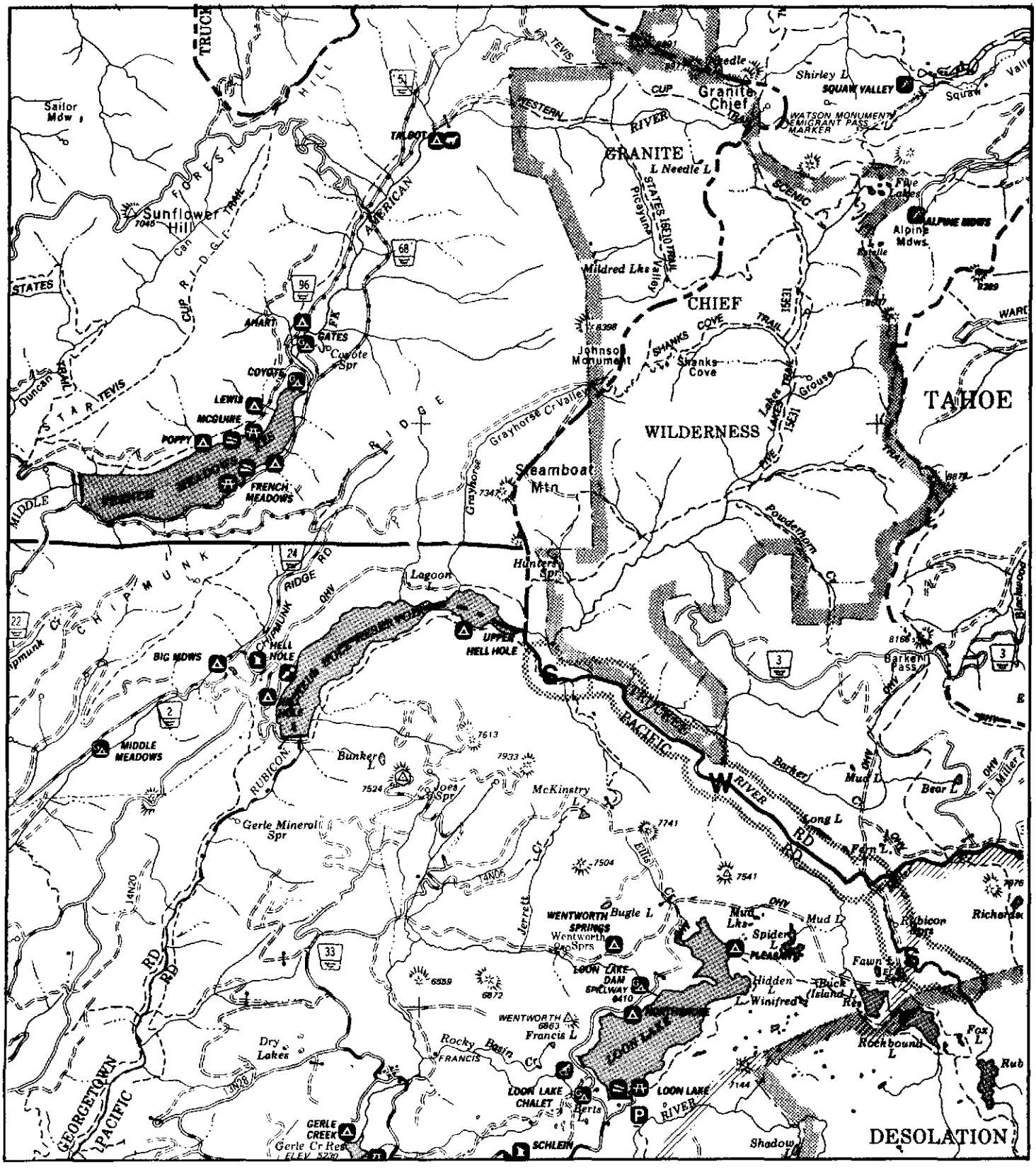
Habitat for wildlife is varied within the North Fork American drainage. There is potential cliff nesting habitat for prairie falcon and the federally endangered peregrine falcon in the North Fork of the North Fork American River. There is late-successional forest habitat in this area, and there is a large tract of black oak woodland along Humbug Creek. Forest Service sensitive species that have been sighted in the drainage include: California spotted owl and marten. In addition, suitable habitat exists for the federally proposed California red-legged frog and Forest Service sensitive northwestern pond turtle, northern goshawk, and Pacific fisher. Other wildlife species known to occur in the drainage include: pileated woodpecker, blue grouse, bear, bobcat, mountain lion, and deer. In addition, the North Fork of the North Fork American River is an excellent movement corridor for wildlife.

The majority of the drainage lies within a highly mineralized belt. The North Fork of the North Fork American River is subject to heavy recreational placer gold mining. There are no utility corridors, public facilities, graded roads, or special-use permits within the river corridors.

Eligibility Study Classification
North Fork of the Middle Fork American River Drainage Map 1



Eligibility Study Classification
North Fork of the Middle Fork American River Drainage Map 2



North Fork of the Middle Fork American River Drainage

The North Fork of the Middle Fork American River drainage is located in the extreme southwestern portion of the Tahoe National Forest. The eligible rivers within this drainage are:

The North Fork of the Middle Fork American River:	Flowing from Screwauger Canyon to its confluence with the Middle Fork American River.
Grouse Creek:	Flowing immediately above Grouse Falls to its confluence with the North Fork of the Middle Fork American River.
Screwauger Canyon:	Flowing from its confluence with Antoine Canyon to the North Fork of the Middle Fork American River.

The drainage is located within Placer County jurisdiction. There are a combined total of 6,115 acres within the rivers corridors, which equates to thirteen miles of *wild river, 2 miles of scenic river, and 0 miles of recreational river.*

Gold mining was the most common historic land use in this drainage. Miners first migrated into the area following the discovery of gold in 1848. Within the area, during the gold rush, a trail was created that later became the famous Michigan Bluff to Last Chance trail. This trail is listed on the National Register of Historic Places. The types of historic sites in the drainage are mining features, communities, cemeteries, ranches, way stations, sawmills, trails, roads, and ditches.

There is limited developed road access into the river corridor. Mosquito Ridge Road crosses the North Fork of the Middle Fork American River at a very steep gorge. Access is primarily by foot trail. There are no community residential areas within the river corridors. A telephone line crosses the North Fork of the Middle Fork American River.

The canyons of the drainage are very rugged. Recreation consists of fishing, camping, hiking, and recreational gold mining. There is a Reno-based time-share gold mining organization that brings shareholders to a section of the North Fork of the Middle Fork American River for recreational mining excursions.

This drainage and the eligible streams are characterized by very deep and very steep dramatic canyon walls. The water clarity is good and there are many water features such as small falls, rapids, and plunge pools. In many areas there are nice rocky cliff formations and attractive vegetation within the narrow riparian zone. The drainage is formed by volcanics on the ridges and upper slopes, and by metasediments on the lower slopes. The river channels are well-confined in the

upper reaches with steep upper slopes. Stream habitats are characterized by long, shallow pools with frequent channel splitting. The fish habitat is excellent, hosting an abundant population of rainbow trout and a few brown trout in the lower reaches of the North Fork of the Middle Fork American River.

The vegetation along the river corridors includes riparian, foothill-woodland, and mixed-conifer plant communities. There are no known threatened, endangered or proposed plant species along these rivers. There are known Forest Service sensitive plant occurrences of *Lewisia serrata* and *Phacelia stebbinsii*. The watch list plants *Viola tomentosa* and *Taxus brevifolia* are also known to grow along these rivers. There is high potential for other sensitive and watch list plants to exist in un-surveyed potential habitat.

There are a variety of habitats for wildlife within the North Fork of the Middle Fork American drainage. There is late-successional-forest habitat in this area. The Federally endangered bald eagle occurs in the drainage, and suitable habitat for the Federally endangered peregrine falcon exists in Grouse Creek. Forest Service sensitive species that have been sighted in the drainage include: California spotted owl and northern goshawk. In addition, suitable habitat exists for the Forest Service sensitive northwestern pond turtle and Pacific fisher. Other wildlife species known to occur in the drainage include: golden eagle, bear, and deer.

The drainage is located in the northern area of the "Mother Lode" (a belt of auriferous gravels). Placer gold mining is common within the North Fork of the Middle Fork American River. The ridge tops of the drainage are harvested regularly for timber. There are several active and recent timber sales within the Screwauger Canyon river corridor.

The Upper Rubicon Drainage

The upper Rubicon River drainage is located in the southeast extremity of the Forest, although it lies on the western side of the Sierra crest. The North Fork of the Middle Fork American River Drainage Map on page IV-51 illustrates the river drainage location. The eligible river within this drainage is the Rubicon River, from one mile above Hellhole Reservoir to the Granite Chief Wilderness boundary. The majority of the upper Rubicon River drainage is located within the jurisdiction of Placer County. The portion of river corridor just above the Granite Chief Wilderness boundary is within El Dorado County.

There are a combined total of 3,193 acres within the river corridor. This equates to a total of 4 miles of scenic river, and 6 miles of wild river, and 0 miles of recreational river.

The Rubicon River corridor was not subject to the intensive mining that the other eligible rivers were. Evidence is emerging that the river corridor may have been used as part of the Washoe trading routes.

The drainage is very accessible in the upper part via a system of Forest Service and county roads. Access to the Rubicon River itself is limited to the Rubicon Jeep Trail.

There are no communities, utility corridors, or developed recreation facilities within the river corridor. The majority of the river corridor is located on public land although there is a large percentage of private commercial timberland dispersed throughout the area.

Recreation within the corridor is remote. Hiking and fishing are light. The road system in the upper reaches is a popular jeep trail that is used for an annual internationally known jeep trek. The jeep trek is considered one of the premier off-road recreation opportunities available in the Sierra Nevada. The upper Rubicon River drainage is characterized by rugged glaciated terrain with many areas of bare rock. The canyon is broad with bare rock falls and clumps of vegetation. The Rubicon River segment is fairly short characterized by long flat stretches. There are some areas with steep stream gradients with a series of small falls and plunge pools.

The plants within the corridor include riparian, mixed conifer, and subalpine species. Riparian plants grow along the river banks and contain deciduous trees and shrubs. Riparian vegetation is also found in other areas of the river corridor that are moist and shaded. There are pockets of old growth within the river corridor. There are no known occurrences of sensitive or watch list plants within the river corridor, although potential habitat has not been surveyed.

The upper Rubicon drainage is rugged and steep. The geomorphology of the area is typified by granitics with rock outcrops, as well as some metamorphics. The headwaters of the Rubicon are characterized by long, straight runs, with riffles and frequent pools. The Rubicon River supports a healthy population of rainbow trout. Boulders, whitewater, and undercut banks provide excellent fish habitat. There are no threatened or endangered fish species identified within the eligible river.

There are no known federally endangered, threatened, or sensitive wildife species in the Rubicon drainage. However, there is scattered late-successional red fir habitat, one island in the flood plain, and small, scattered meadows, potentially providing habitat for the Forest Service sensitive northern goshawk, Sierra Nevada red fox, and marten.

The river corridor has been logged extensively on private land.

CHAPTER V
ENVIRONMENTAL CONSEQUENCES

Introduction

This chapter forms the scientific and analytic basis for comparison of the alternatives. It is important to note that effects analyzed in this chapter relate to alternatives developed regarding the suitability of the study rivers for inclusion in the National Wild and Scenic Rivers System, and not for specific projects within the study areas.

The evaluation generally describes impacts occurring within the 1/2-mile-wide corridor (quarter mile on each side of the riverbank) except where impacts would occur beyond the corridor. Designation or lack of designation of a stream to the National Wild and Scenic River System would not represent a significant change from the present situation for:

-Air Quality
-Disability Access
-Floodplains

Appendix C, wild and scenic river management guidelines, describes the type and level of activity considered compatible with recommended classification. The management standards were used as the basis to evaluate the alternatives. Agency guidelines for segments classified wild would place restrictions on a number of activities, including timber management, structures, access, and utilities. New mining claims would be precluded. The eligible wild segments are along Canyon Creek, Lavezzola Creek, Empire Creek, Downie River, Middle Yuba River, lower South Yuba River, North Fork of the North Fork American River, Big Granite Creek, New York Canyon, Grouse Creek, Screwauger Canyon, North Fork of the Middle Fork American River, and the Rubicon River.

The designation of wild streams would have significantly more effect on restricting land uses such as roads and utilities than designation of streams classified as scenic or recreation. A wild classification would virtually prevent new land uses and restrict the expansion of any existing ones. New land uses on streams classified either scenic or recreation would require mitigation measures as needed to minimize impacts on outstandingly remarkable river resource values.

Water Quality and Quantity

Many of the resource values within the study drainages depend on or are enhanced by the unimpeded flow of the rivers. Typical threats to a river's free-flowing character

include: stream channelization for flood and erosion control or shoreline development; water diversion for agricultural, municipal, or other uses; and construction of dams to produce electricity, provide municipal and irrigation water supplies, or provide flood protection.

Implementation of any of the alternatives discussed in this section would have a minimal effect, if any, on the quality of water available for the beneficial uses discussed previously in the Affected Environment. The Tahoe National Forest (TNF) and Bureau of Land Management (BLM) strives to minimize adverse impacts to water quality by using the tools and techniques designed with the State Water Quality Control Board.

Alternative A: There is a potential to improve water quality in the segments classified as wild because these areas would be closed to *new* mining claims. Current mineral-extraction activities could continue, but there may be opportunities to regulate activities to minimize sediment delivery to streams. This alternative could also lead to a degradation of water quality if more recreationists are attracted to the rivers. With higher use and limited sanitary facilities, bacterial levels could increase. No other water quality parameters would be affected.

One of the benefits to water quality would be that Streamside Management Zones would be widened for certain rivers if they are selected. If a river is designated as a wild and scenic river, it will be classified as a Class I stream (as defined in TLRMP). The SMZ width for Class I streams is 150 to 300 feet depending on stream channel and bank conditions. SMZs are managed to benefit riparian dependent resources and no timber harvest is scheduled within SMZs.

The following streams are currently classified as Class I streams:North Yuba River; Macklin Creek; Downie River; South Yuba River; Canyon Creek; Oregon Creek; New York Ravine; Screwauger Canyon; Middle Yuba River; Rubicon River; East Fork Creek; and the North Fork Middle Fork American River.

Any of these streams that would be designated as wild and scenic rivers would have no change in SMZ widths.

Empire Creek, Lavezolla Creek, Pauley Creek, Fordyce Creek, Humbug Creek and the North Fork North Fork of the American

River are currently classified Class II streams. Any of these that would be designated as wild and scenic rivers would have their SMZ widths increased by 50 feet on either side of the stream.

Grouse Creek, New York Canyon, and Big and Little Granite Creeks are currently classified Class III streams. Any of these designated as wild and scenic rivers would have their SMZ widths increased by 100 feet on either side of the stream.

As mentioned in the Affected Environment, there are prospective major dam sites on the North, Middle, and South Yuba Rivers, and Canyon Creek. Even though at this time these sites are uneconomical, future water needs could make some of these sites more feasible. Many of the other smaller streams also have potential small hydroelectric dam sites that would be precluded from development if this alternative is selected. Selection of this alternative would have the greatest negative impact on future development of water supply, flood protection and hydroelectric power of any of the active alternatives. Existing water rights and diversions would not be affected.

Alternative B:

The existing levels of water quality would remain if the no-action alternative is selected. However selection of this alternative would allow dams to be built in the future. Stream flow is required to provide habitat needs of native fish and game species. Channel form and function can be impaired if flows are changed significantly as can happen when dams are built, fisheries and wildlife habitat could be detrimentally impacted. However before any dams are built, extensive environmental analysis will be required to address these impacts.

Alternatives C,D,E:

Since no segments would be recommended as wild, mining activity would continue and could increase. An increase in mining activity could lead to higher sediment production, negatively impacting water quality. However the same impact could occur under Alternative B since current policy does allow for mineral extraction in many of the rivers.

As in Alternative A, designation of a particular river could result in higher recreational use resulting in increased bacterial levels. Assuming the North and South Yuba River would

attract the highest number of recreationists, Alternative C would probably pose the highest risk, followed by Alternative D, then Alternative E, based on recreational values. The other rivers are more remote and less easily accessed.

In terms of enhanced riparian and water quality protection, there would be no change in Alternative C since the proposed rivers are all Class I. In Alternative D, Empire Creek, Lavezzola Creek, Pauley Creek and the NFNFAR would be modified from Class II to I and New York Canyon and Grouse Creek would be modified from Class III to Class I. In Alternative E, Fordyce Creek, Humbug Creek, NFNFAR would be modified from Class II to Class I and New York Canyon and Grouse Creek would be modified from Class III to Class I.

In terms of water supply, power production and flood protection impacts, Alternative E would be the least impactive since none of the river reaches with proposed dam sites are proposed for designation. Alternative D would be the most restrictive only allowing dam construction on the South Yuba while Alternative C would preclude dam construction on the North Yuba River, Lower South Yuba River, and Canyon Creek, but allow for dam construction on the Upper South and Middle Yuba Rivers as well as dam sites downstream from Englebright Reservoir on the main stem of the Yuba River. In terms of flood control the Corps of Engineers 1990 study did not recommend new dams on the South Yuba River or Middle Yuba River. Therefore Alternative C while precluding dam contruction would not be precluding a major flood control element for the Corps of Engineers to protect the Marysville, Yuba City area. Alternative C would not require significant regulated flow increases for the recreational, scenic, and historic outstandingly remarkable values on the lower South Yuba River.

Alternative F: Since some segments would remain wild the benefits to water quality in terms of lower sediment levels and turbidity would be the same as in Alternative A. However the major mineral extraction areas along the South, Middle, North Yuba Rivers and Canyon Creek, are not included in this alternative. Cumulatively this alternative would provide less benefit to downstream beneficial users than Alternative A in terms of sediment. The bacterial increase concerns are similar to those discussed in Alternative A. The impact could be more

than Alternative E and probably similar to Alternative D based on access and current recreational use.

In terms of enhanced riparian and water quality protection, Empire Creek, Lavezzola Creek, Pauley Creek, Fordyce Creek, and the NFNFAR would be modified from Class II to I and Big and Little Granite Creeks, New York Canyon and Grouse Creek would be modified from Class III to Class I.

All of the rivers with major potential dam sites are excluded in this alternative. The segments on the Rubicon River and Fordyce Creek are shortened to allow for increased capacity at Hell Hole and Spaulding Reservoirs should the existing dams be raised. This would eliminate the impact to future improvements at these sites.

Landowners and Land Use

Federal condemnation authority has been identified as a major concern of private landowners through public scoping. Because there are considerable private land holdings within the study boundaries of some of the rivers, it is important that the impact of designation on private land be clearly discussed.

US Department of Interior and US Department of Agriculture Interagency management guidelines and the Wild and Scenic Rivers Act state that all existing uses and development at the time of designation would be allowed to continue. A set of standards, Appendix C, discuss activities that are considered compatible with Wild and Scenic designation. Any new activities which are within standards are generally acceptable. The guiding determination is whether the activity or uses affect the outstandingly remarkable values of the rivers.

The Wild and Scenic Rivers Act prohibits the Secretaries of Interior and Agriculture from acquiring fee title to private land by condemnation if more than 50 percent of the acreage within a river corridor is owned by the federal or state government. See table V-1 for rivers with more than 50 percent public ownership and rivers with less than 50 percent public ownership. Public ownership in this case includes federal agencies (U.S.Forest Service and Bureau of Land Management) and state government. Condemnation is permitted, however, for clearing title and acquiring scenic and other easements that are reasonably necessary to provide public access to a river or to protect the outstandingly remarkable (OR) values when they are threatened. The federal government may, however, purchase land from willing sellers. The Bureau of Land management has a policy of no condemnation on the

South Yuba River and State Parks will purchase Private land only on a willing seller basis.

Table V-1

Rivers by Public Ownership over 50% and less than 50%

Canyon Creek	99% Public		
Lavezzola Creek	89% Public		
Pauley Creek	98% Public		
Empire Creek	92% Public		
Downie River	91% Public		
New York Ravine	67% Public		
North Yuba River	79% Public		
Middle Yuba River	63% Public	Oregon Creek	44% Public
Macklin Creek	51% Public	East Fork Creek	34% Public
Lower South Yuba River	57% Public	Upper South Yuba River	38% Public
Humbug Creek	59% Public	Fordyce Creek	47% Public
NFNF American River	69% Public	Big Granite Creek	35% Public
Little Granite Creek	52% Public		
New York Canyon	100% Public		
NFMF American River	90% Public		
Grouse Creek	100% Public		
Screwauger Canyon	100% Public		
Rubicon River	56% Public		

Condemnation for scenic easements would be considered when outstandingly remarkable values are impacted or threatened. Purchase of private lands from willing sellers would be preferred over scenic easements in most cases. Although not required, private landowners would be encouraged to manage their lands in a way that protects the outstanding values of the river corridor. Counties have the responsibility and authority through zoning to regulate and encourage the management and uses on private lands. Because all private landowners would be encouraged to continue present land uses and to use the standards in Appendix A as a guide for future land uses and developments, designation would maintain current land use trends and would maintain present lifestyles.

Designation would place no restrictions on the disposal of private lands. Violations of water quality laws by private landowners are presently the responsibility of local and state governments and this would remain unchanged.

While State and local land use regulations and zoning, *not federal guidelines*, regulate the private land uses within recommended river corridors, proposals for new development could be indirectly impacted by the fact that adjacent public lands are recommended. Land use activities on private property that would irretrievably destroy outstandingly remarkable resource values may prompt Forest Service interest to acquire private parcels preventing loss of those values. **Land acquisition would be on a willing seller basis**. Generally, the potential effects on land use and future land development vary with each designation on National Forest System land. The wild classification would be the most restrictive and the recreational classification the least restrictive. Impacts on private land from increased use along recommended rivers may include trespass, littering, vandalism, and sanitation problems. Another concern to private land owners is access. Access to private land often requires the use of National Forest System Land. With or without river designation, these issues can be a problem for private landowners where public use is increasing. A management plan is required within three years of river designation. River management plans address private land impacts and develop actions to reduce these impacts where ever possible. The following discusses the impacts to land use and ownership by alternative.

Alternative A

This alternative has the highest potential to impact land use because all twenty-two rivers are recommended. Additionally, this alternative recommends the greatest number of wild rivers. Wild river designation would include more constraints or restrictions on land uses. The significance of this effect is somewhat theoretical because it is tempered by the remoteness and low potential for a wide range of land uses. This alternative would also have the highest potential for affecting

private land uses because all of the eligible streams are recommended for designation.

Under this alternative, Forest Service costs would be the highest for land use coordination including locating property lines along those rivers with large tracts of private land. Generally, rivers that are now predominately in public ownership would be less complex and costly to manage as wild and scenic rivers than those rivers with extensive, mixed ownership. Several of the proposed river corridors contain high percentages of private property.

Designation, particularly wild segments, could restrict future development of utilities such as highways, railroads, electrical transmission lines, sewer lines, and gas/oil lines in the future.

Alternative B

There would be no immediate impact because no rivers are recommended for designation. In the long term, non-designation does not necessarily insure that there will be no impact to existing and proposed land uses. A large water development project would preclude or eliminate other land uses. Water-project developers typically relocate existing land uses and acquire the private land necessary to build a dam. The merit of any water project would be weighed against potential environmental impacts and impacts to land uses in an Environmental Impact Statement (EIS).

Alternative C

This alternative would have low to moderate impacts on land uses. Three rivers are recommended with a total of 114 miles or about 38 % of Alternative A in river miles. Designation of the North Yuba River would have little impact on future land uses because the majority of the river is classified as recreational. There could be some indirect effects on harvesting timber on private land. Most of the private land owners are concentrated in three communities where local land-use decisions would continue under local jurisdictions. There could be some indirect effects on harvesting private land due to additional public concerns. However, the visual sensitivity of these lands are well known and already receive county and community emphasis. The Lower South Yuba River is recommended for a mix of recreation and scenic designation which could modify or restrain some future land uses. This river has the highest potential for indirect effects from public use described above. If recommended, the required manage-

ment plan would clearly address ways to mitigate the potential effects of trespass, vandalism, litter, and sanitation problems.

Alternative D This alternative would have moderate effects on land uses. While this alternative has a third less river miles than Alternative A, the potential effects would be far less because the wild rivers are all classified as scenic. Additionally, this alternative does not include the South Yuba River, which has broader private land and public-use concerns than the other rivers. The lower reach of the Middle Yuba River has some potential for additional public-use conflicts where access to the river crosses private land.

Alternative E This alternative would have little effect on land uses in general because the streams recommended are short in length with little development. There would be constraints on future land-use opportunities along those streams which are classified as wild. While the recreation classification on the upper South Yuba River has fewer constraints, the river parallels an important transportation and utility corridor. There is a wide variety of important land uses already allowed within this corridor. The direction outlined in the TLRMP is to concentrate additional uses within this corridor.

Alternative F This alternative would have a low to moderate effect on land use. Several rivers are classified wild, which would limit land use management as discussed in the previous alternatives. Uses along a few of the streams, like Big Granite Creek and Little Granite Creek, could be indirectly affected by private landholders logging within a wild and scenic river corridor.

Timber Management

While timber management activities could continue on public land within designated wild and scenic river corridors under scenic and recreation designations, no timber harvesting is allowed on public land in the river corridor under a wild designation. There would be minor reductions of timber outputs and additional timber sale preparation and administration costs to assure compatibility with scenic and recreation river objectives. Timber management activities within the river corridors would be secondary to protection and enhancement of the outstandingly remarkable river resource values. Typically, scenic rivers are managed for regulation class 3 outputs and recreation rivers are managed for regulation class 2 outputs. Timber

in the half mile river corridor of a wild river would be removed from the regulated forest timber base.

The TLRMP regulation classes are defined below:

Regulation Class 1 -	Lands are managed under even-aged management, with short rotations (50 to 100 years) and intensive management practices, plus other resource values and outputs.
Regulation Class 2 -	Lands are managed to co-emphasize nonforest resources and even-age forest management. An example is even-age management on a long (150 year) rotation meeting partial retention and spotted owl habitat requirements.
Regulation Class 3 -	Lands are managed to meet visual retention and watershed SMZ objectives. The forest cutting level is about 5% of the current inventory per decade.

The effects of each alternative are determined by the amount and regulation class of commercial timber land within the corridor of each proposed wild & scenic river. The effect will also be determined by the proposed classification of each river corridor (wild, scenic, or recreation).

In the TLRMP, there are SMZs (Streamside Management Zones) established for each of the proposed rivers of 100 to 300 feet. The SMZs amount to about eight to twenty-three percent of the area within the proposed river corridors. No timber harvesting is currently allowed within SMZs. If a river is designated as a wild and scenic river, it will also be classified as a Class I stream (as defined in TLRMP). The SMZ width for Class I streams is 150 to 300 feet depending on stream channel and bank conditions.

The following streams are currently classified as Class I streams; North Yuba River; Macklin Creek; Downie River; South Yuba River; Canyon Creek; Oregon Creek; New York Ravine; Screwauger Canyon; Middle Yuba River; Rubicon River; East Fork Creek; and the North Fork Middle Fork American River.

Any of these streams that would be designated as wild and scenic rivers would have no change in SMZ widths.

Empire Creek, Lavezzola Creek, Pauly Creek, Fordyce Creek, Humbug Creek and the North Fork North Fork of the American River are currently classified Class II

streams. Any of these that would be designated as wild and scenic rivers would have their SMZ widths increased by 50 feet on either side of the stream.

Grouse Creek, New York Canyon, and Big and Little Granite Creeks are currently classified Class III streams. Any of these designated as wild and scenic rivers would have their SMZ widths increased by 100 feet on either side of the stream.

Two major issues have caused a reduction in timber harvesting on the Tahoe National Forest. Current interim guidelines for the protection of the California spotted owl have contributed to the reduction of timber volumes sold resulting in timber harvest below the Annual Sale Quantity (ASQ) in the TLRMP. An Environmental Impact Statement (EIS) for management of the California spotted owl is being completed and when finalized will amend the TLRMP. The direction for timber management and ASQ for timber harvest could be changed.

National direction to reduce clearcutting has also had a downward effect on ASQ. This is due to the fact that the ASQ in the TLRMP was based on even-aged management and short (50 - 100 year) rotations with an average of 2046 acres per year of clearcut harvesting. Current management practices emphasize more uneven aged management and longer rotations.

The potential reduction in ASQ from any of the action alternatives will be small when compared to the impacts of current management guidelines and direction as listed above. The impact is small because:

a) A wild classification is the only classification that prohibits forest management and timber harvesting within the one-half-mile-wide river corridor. Forest management may be allowed, but only where it enhances or protects the river's outstandingly remarkable values.

b) A scenic or recreational classification will change timber harvest outputs very little from current levels. This is due to the fact that management direction for these classifications is very close to current management direction.

c) There are a limited number of acres of Regulation Class 1 in the proposed river corridors. Classification of rivers as scenic or recreational, allows forest management and timber harvesting to continue, although harvesting will be designed to protect each river's outstandingly remarkable value(s).

Timber Management on Private Land

Timber management and harvesting can take place on private land as long as the river's values are protected. Timber Harvest Plans (THPs) for private land within a

wild & scenic river corridor must address the impacts to river values of any harvesting within 200 feet of the river. Impacts to scenic values of harvesting outside the 200 foot corridor are addressed in the cumulative impacts assessment section of the THP.

Rivers recommended as wild, scenic, or recreational will become "Special Treatment Areas" under State of California Forest Practice rules. Special Treatment Areas are defined as those areas that contain one or more significant resource features that may be at risk during forest operations. This includes areas within 200 feet of a recommended wild, scenic or recreational river. Timber harvest operations within these areas must be compatible with the objectives for which the areas were established. This means that timber management practices on private land must protect the outstandingly remarkable values for which the river was recommended under the Wild and Scenic Rivers Act.

The following is a discussion of the potential impacts to timber harvesting:

Alternative A

Alternative A would have the most impact on timber harvesting. All river segments classified as wild, would have no future timber harvesting within the designated one half mile wide corridor. Segments classified as scenic, would have modified timber harvesting allowed within the classified corridor. Intensive even-aged management may not be allowed within the designated corridor. Timber harvest volumes per acre would be reduced from the TLRMP ASQ volumes for all acres of Regulation Class 1 and 2 lands. The harvest volumes within corridors classified as recreational may decline slightly. Most types of forest management practices are allowed as long as they protect the outstandingly remarkable values for which the rivers were recommended.

Timber management activities within the river corridors would be secondary to protection and enhancement of other resources. Designation would not change the suitable forest land base, except for rivers classified wild. For those rivers classified as wild, the commercial timber in the one-half-mile-wide river corridor would be removed from the regulated forest land base. For those rivers recommended as scenic or recreational a special emphasis would be placed on protecting and enhancing outstandingly remarkable resource values. Timber management practices would include thinning, sanitation/salvage cutting, and other silvicultural cutting practices. Clear-cutting would not be used except as needed to treat insect/disease or safety problems.

Alternative B

Present timber management and harvesting would continue. All lands suitable for timber management in the TLRMP will continue to be suitable.

Alternative C

This alternative would have the second lowest impact on timber management of all action alternatives. The major impact will be in the proposed corridor on Canyon Creek. About 3000 acres within the Canyon Creek corridor are suitable for intensive even-aged timber management (regulation class 1) in the TLRMP. If Canyon Creek is recommended as a scenic river, timber management practices and harvesting would be modified to protect the outstandingly remarkable resource values in the corridor. Intensive management would not be practiced on all of the acres now recommended for such management. This corridor is not being actively managed at the present time, due to the lack of roaded access and the high cost of building roads into the corridor. Therefore the impact of designating Canyon Creek is lower than that indicated by a comparison with TLRMP ASQ.

The impact of designation of the other rivers in this alternative is minimal because almost all acres in the proposed corridors are regulation class 2 or lower. Since all of the proposed river segments would be classified as either scenic or recreational rivers, the harvesting on regulation class 2 and 3 lands would not be significantly different than what is specified in current management direction.

Alternative D

This alternative would have the most effect on forest ASQ after Alternative A. The impact on ASQ is primarily in the Canyon Creek, Middle Yuba River and Downie River corridors. These all have large acreages of regulation class 1 and 2 lands. All three of these river corridors have little roaded access and developing access is costly. None of these corridors are currently under active timber management. The management of regulation class 1 lands in river corridors classified as scenic would have to be modified to protect river values. The ASQ prescribed in the TLRMP would be reduced. This alternative would reduce the timber harvest in these corridors from the ASQ in the Forest Land and Resource Management Plan.

Alternative E

This alternative would affect the fewest acres of timber land scheduled for timber harvest in the TLRMP. The river corridors

in this alternative have a small number of acres suitable for timber harvesting so designation of wild, scenic or recreational rivers will have a minimal affect on scheduled timber harvest and management. The corridors where timber management would be affected are South Yuba River, New York Ravine, North Fork of North Fork American River, Grouse Creek, and North Fork of Middle Fork American River.

Alternative F

This alternative would affect fewer acres than Alternative A and D but more than in Alternatives B, C, and E. The effect of this alternative on timber management and harvesting is in the middle of the range of effects of all alternatives considered in detail. Timber harvesting would be most affected on the Downie River, Empire Creek, North Fork of Middle Fork American River, Screwauger Canyon and Pauley Creek. Regulation class 1 lands wouldn't be intensively managed and harvest prescriptions would be modified. Regulation class 2 lands may have prescriptions modified to protect river values. There will be minimal effect on timber harvesting of the other rivers in this alternative.

Regulation Class by Alternative
Table V-2

The effects of each alternative are determined by the amount of commercial timber land (measured in acres) within the proposed river corridors. The commercial timber land is managed under regulation classes.

Effects shown by acres of regulation class where outputs will decrease from Forest Plan projections. Decreases will depend on classification level recommended.

Reg Class	A	B	C	D	E	F
1	5927	0	3326	5333	1014	1426
2	5855	0	1045	4791	936	3533
3	10007	0	6933	9288	1302	1857
Totals	**21789**	**0**	**11304**	**19412**	**3252**	**6816**

Range Resources

Livestock grazing is managed in accordance with the TLRMP standards and guidelines and individual allotment management plans. The objective is to develop management strategies to bring all range lands to satisfactory or better condition. Although current levels of livestock grazing are generally considered compatible with wild and scenic river designation, designation could result in increased public use for a period as described in the section on recreation. Additional public use increases the potential for conflicts between livestock grazing and recreation use, and could result in changing or reducing livestock grazing within the recommended river corridors to resolve any possible conflicts resulting from designation. The Gold Valley, Willow Creek, American Hill, Bowman, Canyon Creek, Duncan Sailor, Deadwood, Mosquito Ridge, Hellhole, and Oregon Creek grazing allotment impacts would be minimal because the majority of grazing is confined to the ridge tops (the stock have problems navigating the steep canyon walls).

Mineral Resources

The impact of river designation on mineral development, gold mining in particular, would be directly proportional to the mineral resources available within a particular drainage. There would be more impacts on the development of mineral resources and on-going mining along wild rivers. Management under a wild classification would eliminate new claim locations. Miners with existing valid claims prior to designation could continue mining within recommended wild sections. Mineral operations on streams classified as scenic or recreational could be required to modify operations in order to mitigate effects on the outstandingly remarkable values. Modifications would be determined on a case-by-case basis where effects on river values are identified. Modifications to mining operations may vary from minor to significant in nature. Designation of a river could cause additional requirements or constraints from other government agencies such as the State Fish and Game Department which regulates stream dredging or the Corps of Engineers who administers Section 404 of the Clean Water Act.

Future placer and hardrock mines and mining activities could be affected in any alternative if they happen to be located within the quarter mile-corridor on each side of the river. River designation would be the most restrictive for proposed new roads and other claim or mining developments.

Recommended rivers would preclude future major reservoir development and, therefore, would preclude inundation of mineral resources upstream from potential dam sites. The following describes the impacts to mineral resources by alternative.

Alternative A This alternative would have the highest potential impact on mineral-resources development on those streams classified as wild that have substantial mining activity along them at this time. As discussed above, wild designation has the greatest impact on present gold mining activities within the half mile stream corridor as well as on future mineral-resources development.

Alternative B This alternative would have no immediate new effects or impacts on mining and mineral-resources development. However, non-designation does not necessarily insure that there will be no impacts on mineral resources in the long term. A water-storage facility would preclude existing and proposed mineral development. Water projects typically result in withdrawal of the project area from mineral entry, and existing claims are either contested or acquired to prevent conflict with the project. The likelihood of water facilities affecting claims is dependent upon the water development potential on a particular stream. With no formal large water development proposals imminent, non-designation is likely to have less impact on mineral development than designation.

Alternative C This alternative would have light impacts on existing mineral resource development on the TNF because there are only three rivers recommended. The two segments classified as wild have been modified from wild to a scenic classification. The necessity to modify existing mining operations are likely to be limited because existing Forest Service plan of operation requirements are probably adequate in most cases.

Alternative D This alternative would have light to moderate impacts on existing mineral resource development. The rivers originally classified as wild are changed to scenic in this alternative so there would not be major changes to the nature of existing operations. As discussed above, there is the possibility that individual operators would be required to modify operations to protect outstandingly remarkable river resource values.

Alternative E This alternative would have slight impacts on existing minerals resources development because the rivers recommended in this alternative have few mining activities. An exception is the North Fork of the North Fork American River, where some mining activites occur along the wild segment. The remainder of the streams have low intensity mining activity and modifica-

tions may be required to protect outstandingly remarkable river resource values.

Alternative F

This alternative would have light to moderate impacts on existing mineral-resources development. Three rivers with existing mineral operations are recommended for a wild classification. The impacts on these three streams could be substantial as discussed above. The rest of the rivers either have no mining operations or are recommended for recreation or scenic classification, which would have less impacts on existing or future operations.

Recreation

Alternative A

It is estimated that a small to moderate short-term increase in recreation use would occur along the rivers with national designation. Over time it is expected that recreation use will return close to the current rate of use. The basic attractions of each river will be the main long-term determinant of actual recreation use. Generally, the rivers with good access, developed recreation facilities, and water attractions for fishing, swimming, rafting, kayaking, and water play are likely to get more of the increased use. The North and South Yuba Rivers specifically would be expected to get more attention due to the roaded access and recreation opportunities already available. Both of these rivers already receive high use and could handle moderate increases in the future. The low flows during the summer season would be considered consistent with the water play and other summer water use activities identified as outstandly remarkable recreation. Significant new flow requirements would not a requirement of river designation on the lower South Yuba River. The rest of the rivers have few roaded access points and require more effort to visit by the public. For these rivers, recreation use may increase around access points, causing some overcrowding.

With designation of all twenty-two rivers there would be a substantial change in the recreation opportunity settings (ROS), particularly for those rivers recommended for a wild designation. In many cases the present setting is being managed for roaded natural conditions and the wild designation would change to managing for primitive conditions. See Table V-2 for a comparison of alternatives by ROS Class.

The North and South Yuba Rivers, which are included in this alternative, would provide an additional boost to overall tourism in the area. Formal designation of the rivers would attract additional use and also provide additional ways for local communities to market their recreation opportunities and attractions. Since the projected increase in use is expected to be small to moderate, the potential boost to tourism should be seen as a supplement to the existing business and not as a major new boom. The summer capacity is usually full for private facilities, so the main benefit may be opportunities to provide additional off season attractions. The other rivers could help supplement some of the tourism appeal but not nearly to the same extent as the North and South Yuba Rivers.

Alternative B

Recreation use would continue with the existing situation and, initially, there would be no changes. In the absence of water impoundments or diversions, this alternative would have no new effects on recreation on National Forest System lands or private lands. Recreation use would increase moderately over time as projected in the TLRMP.

The construction of dams would dramatically change the nature of recreational opportunities. With a dam there would be a shift of recreation opportunities to still-water boating activities and, depending on the size of reservoir created, could include fishing, general boating, water skiing, and sailing. The recreation setting for remote rivers would change from wild or semi-primitive to roaded natural or rural settings depending on the degree of marina and intensive recreation facility development. Where dams were built, the existing river recreation opportunities would be replaced with reservoir recreation activities as described above. In terms of recreation demand, both activities, river recreation and still water recreation, are in high demand and continue to grow. The actual amount of recreation opportunities provided by a reservoir development vary widely depending on the slope of the shoreline and the number of realistic access points to the reservoir. Recreation in semi-primitive motorized, non-motorized, and wild settings have been identified in the TLRMP as unable to meet future demand due to the lack of available acres. River recreation in the recreation opportunity settings of semi-primitive motorized, semi-primitive non-motorized and wild can be considered to be in a shortage category. River recreation activities in roaded natural settings are also very

popular and receive high levels of use and would continue to increase in the future.

Small hydroelectric projects could be built on any of the streams under consideration. The main impacts from these projects would be a change in the free-flowing characteristics of the river and a new development. Small hydroelectric projects normally include an area where water is diverted, a pipeline for some distance, a small powerhouse, power lines, and associated roads for construction and continuing access to the project.

Alternative C

The effects for the North and lower South Yuba Rivers described in Alternative A would be the same. Designation of these two rivers would emphasize increased recreation use to a moderate degree and help promote tourism for local communities. The third river, Canyon Creek, would be managed for scenic classification, but recreation use would remain semi primitive due to the remote location and rough access. This alternative would not emphasize managing for primitive settings but the more remote sections of the rivers would remain relatively primitive. The scenic classification would continue to maintain the remote rough road or trail access to the steep canyons in just a few places. Motorized access to the rivers on rough dirt roads and semi-primitive motorized activities in the remote areas would continue at about the same level, which is fairly low use. In this alternative there would be no shift in ROS classes because the wild segments are recommended for scenic designation.

For those rivers not recommended for designation in this alternative, the effects are similar to those described in Alternative B. The free-flowing character of the rivers could be changed over time and if changed, recreation use would change as well. In general, recreation use would continue as is.

Alternative D

The effects of designation for the North and Middle Yuba Rivers would be similar to the effects of designation described in Alternative A. Designation of the North Yuba would emphasize increased recreation use to a moderate degree and help promote tourism for local communities in Sierra County. The other tributaries to the North Yuba River are also recommended and would provide additional support for

increased tourism with a likely emphasis on day use and interpretation of the older forest ecosystem found in this area. These rivers have fairly remote access and it is likely that more trails would be developed. Motorized access for mining claims would also be recognized and addressed in development of a management plan.

In this alternative there would be a moderate shift in recreation settings provided from roaded natural and semi-primitive motorized to primitive because several rivers in this alternative are recommended for a wild classification. See table V-2 for a comparison of ROS settings. For those rivers not recommended, the consequences are similar to Alternative B. The free-flowing character could change over time and if changed, recreation activities would change as well.

Alternative E

The effects of designation for the upper South Yuba River would be the same as described in Alternative A. The upper South Yuba would provide increased recreation use and encourage increased tourism that would help businesses along the I-80 corridor in Nevada and Placer Counties. The main opportunities to promote and increase tourism and recreation on the North and lower South Yuba Rivers would be foregone.

There would be a slight shift of recreation opportunity settings from roaded natural and semi-primitive to primitive settings, with an emphasis on non-motorized activities. This shift would be primarily on the North Fork of the Middle Fork American River and some of the tributaries to the North Fork American River. See Table V-2 for ROS settings.

In this alternative Fordyce Creek would be recommended and the emphasis would be to enhance semi-primitive motorized opportunities including the Sierra Trek event.

Alternative F

There would be some increases in recreation activities, primarily on streams providing primitive or semi-primitive recreation opportunities with limited access. There would be a moderate shift from roaded natural and semi-primitive motorized settings to primitive settings in this alternative.

Table V-3
Management of Recreation Opportunity Spectrum
by River

North Yuba River Drainage

River	Classification	Existing ROS Allocation	New ROS
Canyon Creek	Scenic	SPM	same
	Wild	Rn	Primitive
Empire Creek	Scenic	Rn	same
	Wild	Rn	Primitive
Downie River	Recreation	Rn	same
	Wild	Rn	Primitive
Lavezzola Creek	Scenic	Rn	same
	Wild	Rn & SPM	Primitive
Pauley Creek	Scenic	Rn & SPM	same
North Yuba River	Recreation	Rn	same
	Scenic	Rn	same
	Wild	Rn	Primitive

Middle Yuba River Drainage

River	Classification	Existing ROS Allocation	New ROS
Oregon Creek	Recreation	Rn	same
Middle Yuba River	Scenic	Rn & SPNM	same
	Wild	Rn & SPNM	Primitive
East Fork Creek	Scenic	Rn	same
	Wild	Rn	Primitive
Macklin Creek	Scenic	Rn	same

South Yuba River Drainage

River	Classification	Existing ROS Allocation	New ROS
Humbug Creek	Scenic	Rn	same
	Wild	Rn	Primitive

Lower South Yuba	Recreation Scenic Wild	Rn SPM SPM	same same Primitive
Upper South Yuba	Recreation Scenic	Rural, Rn, & SPM SPM	Same Same

North Fork American River Drainage

River	Classification	Existing ROS Allocation	New ROS
NF of NF American	Wild	Rn	Primitive
Little Granite	Scenic	SPM & SPNM	Same
Big Granite	Wild	SPM & SPNM	Primitive
New York Canyon	Wild	SPNM & Primitive	Primitive

Middle Fork American River Drainage

River	Classification	Existing ROS Allocation	New ROS
NF OF MF AMERICAN (includes Grouse Creek & Screwauger Canyon)	Scenic Wild	Rn & SPM SPM	same Primitive
Rubicon River	Scenic Wild	Rn, SPM, & SPNM SPM & SPNM	same Primitive

Economics

Alternative A

This alternative has the most potential for economic impacts because all twenty-two rivers are recommended for designation. The most significant impact would be on future mining claims that would be precluded on wild rivers. For existing claims, the economic effects are likely to be minor. See mining for more details on this issue.

This alternative would cause minor economic effects on the timber industry because forest harvesting is already fairly constrained along the river corridors. While the economic effects on forest harvesting would be minor in the short term, this alternative would have broader long term effects. The high number of wild rivers would preclude long-term timber management opportunities within several river corridors and could effect long-term transportation options. See timber management effects for more details.

There would not be any direct effects on utility operations in the short term. With the high number of streams recommended, there is a higher likelihood that some of the resource values identified for these recommended streams could create future constraints or effects on some of the water projects and the requirements for instream flow. This in turn could have some future economic consequences. Additionally, designation of all twenty-two streams would preclude future water development along these streams. The twenty-two streams represent most of the future water-development options within the Forest. See water effects for more details.

The overall increase in tourism would be moderate because only a few of the rivers have good public access and tourist attractions. Overall, it is expected that tourism would have a short term increase due to interest in these rivers, and then revert back to the historic increase of use based on the natural attractions of each river. See recreation effects for expected use of rivers. This alternative would have the most potential effect on all the communities and people that use these twenty-two rivers because all the rivers are recommended for designation. After designation, management plans would be developed for each river with additional input from river users and local communities. These management plans may emphasize resources other than those currently being

emphasized under the TLRMP guidelines. River management plans may require more regulations and closures in traditional use areas. On the other hand, management plans typically address local issues and are an opportunity to resolve local problems. Forest Service costs for planning and implementation would be highest in this alternative at $916,000. This cost is derived from Table V-4. Cost of Designation.

Alternative B

Economic activities and social interactions would continue as before. There would be future opportunities for timber harvesting, mining, water development, and tourism under the constraints already prescribed in the TLRMP. Many of the rivers under consideration would continue to attract high recreation use. Future water projects would not be precluded in this alternative, but each proposed project would be evaluated on its own merits through the normal environmental analysis process. There would be no new effects to local communities because no new actions are proposed. There *would be no new costs for Wild and Scenic implementation.*

Alternative C

This alternative has low to moderate potential to cause economic and social impacts. Potential mining impacts for people with mining claims may be reduced because the wild segments along Canyon Creek and the North and lower South Yuba Rivers are modified to a scenic classification. River dredging would continue with out new requirements or permits for those claims. This would eliminate any impact on dredging activities. There would be minimal to no direct economic impact on timber harvesting activities because the constraints associated with the recommended classification would be about the same as existing TLRMP constraints. There would be no economic impact to the existing water *districts' infrastructure and water operations.* Designation of the three rivers would preclude some future water development projects, which could have implications for future economic development. There is no clear way to provide an economic analysis of these implications because there are no formal proposals for projects at this time with identified costs and benefits. The main potential economic effects of this alternative for water development rests mostly on Yuba County Water Agency (YCWA) and their associated water districts because it would preclude possible projects on the North and lower *South Yuba Rivers. These rivers have the most potential for* future water projects that Yuba County Water Agency could pursue. This alternative would not preclude all future water

development projects for Yuba County because there are project options both inside and outside of the Forest boundary still available. The economic effects on Nevada Irrigation District (NID) would be minimal. The main potential effect would be the preclusion of water-development projects below Spaulding Reservoir. Losing water development options below Spaulding Reservoir which, would also preclude NID from pursuing partnerships with YCWA that could provide economic returns to NID. See the water effects for more details.

Tourism would be promoted in this alternative, particularly on the North and lower South Yuba Rivers, the two rivers that have the highest attractions and opportunities for public access. The economic benefits are likely to be minor to modest because the overall increase in tourism is not likely to be very significant. With river designation the Forest would be able to secure recreation investment dollars more effectively and provide some additional facilities to accommodate additional use. Merchants could use the wild and scenic river designation as an additional marketing angle that could attract more use. Overall use increases are expected to be slight to modest, and therefore, economic gains in tourism are expected to be modest. Forest Service costs for planning and implementation of this alternative would be $424,000.00, about the middle of the cost range of alternatives.

Alternative D

This alternative has potential modest effects on miners with placer mining operations and claims on the river. The classifications for eight rivers in this alternative have been modified from wild to scenic. All eight of these streams have a significant number of mining claims. A scenic classification would not preclude motorized dredging activities and only in specific cases is it likely that certain operations would be modified to protect wild and scenic river values. The overall direct economic effects to these miners would be minimal. Potential economic effects on the timber industry would be minor because the scenic and recreational classifications would have similar constraints to harvesting activities as the existing TLRMP constraints. In some cases the total volume available for a timber sale may be reduced because there may be a shift in river management emphasis towards protecting the river resource values. This would increase

costs to the operator or possibly reduce outputs and cause some economic effects.

This alternative would not have any direct effects on the various water agencies and their existing facilities operating on the forest. Designation would preclude further water development on all the rivers recommended. Precluding water projects would have the most potential impact on YCWA because Canyon Creek, North Yuba, and Middle Yuba Rivers are the sources of future water projects for the YCWA. See the water consequences for more details.

The improvement in economic benefits would be modest in this alternative due to increases in tourism. The North Yuba River would provide the best opportunities for increased tourism with some opportunities for ecosystem tourism along Empire Creek, Pauley Creek, Downie River, and Lavezzola Creek. Overall economic benefits are expected to be slight because only a modest increase in river use is expected because of designation. Cost of Forest Service planning and implementation would be $518,000.00, a little over half the cost of Alternative A.

Alternative E

Overall, this alternative would have slight to modest social and economic effects. Only a few rivers with substantial placer mining activities are recommended in this alternative. The economic effects on the placer mining community would be slight to none. The North Fork of the North Fork American Wild River is classified as wild. The management under a wild classification may possibly modify or reduce some placer mining activities. There are some claims concentrated near the North Fork American River. The other mining claims on other rivers would only have a slight chance of operations being modified to protect wild and scenic river values.

Economic effects on forest industry would be very slight in this alternative because the rivers recommended have few timber resource opportunities. Constraints on timber harvest would be similar to present TLRMP standards and guidelines.

Overall the economic and social effects on water utilities and their beneficiaries would be slight because there would be no direct impacts and few significant future water developments precluded. There is one specific exception to this overall

picture. Designation of the upper South Yuba River and Fordyce Creek would preclude NIDs long-term plans for expanding the height of the dam at Spaulding Reservoir. NID believes that raising the height of the dam is one of the more feasible future water-improvement projects.

Increases in tourism for economic benefits would be slight in this alternative. The upper South Yuba River would have some potential for increased use because of the easy access from Interstate 80. In the long term, it is predicted that use of these rivers would generally return to the current level that the Forest has been experiencing. Forest Service costs for planning and implementation would be the lowest of all action alternatives at $231,000.

Alternative F

In the overall picture, this alternative would have slight to modest economic and social impacts. The potential effects would be different than Alternative E. For example, there would be at least modest effects on the mining community because several streams are recommended for wild designation. With the wild designation there is a possibility that mining operations would be modified and future claims would be precluded. Over time, this could reduce mining activities and ultimately money to local communities. The other streams would have a slight chance of modifying mining activities to the extent that could be an economic impact.

There would be slight to modest potential economic impacts to the timber industry based on recommended designations. The several recommended wild segments would preclude harvest activities within the quarter-mile corridor on each side of the river. In the long run this would reduce the total volume of timber available for harvest to a slight extent and have a slight effect on employment. The rest of the rivers recommended would have almost no economic effects because of existing TLRMP constraints.

There would be almost no impacts to existing and future water-development projects because the rivers with good potential are not recommended in this alternative. Additionally, the Fordyce Creek segment is modified so that the dam at Spaulding Reservoir could be raised and not back water into the proposed stream segment. Small hydroelectric projects

would be precluded on those streams recommended for designation.

Increases in tourism attributed to wild and scenic river designation are likely to be slight because the recreation attractions and public access are limited on most of these streams. It is more likely that use would continue to increase modestly based on existing attractions and public access, population, and growth. Development of river management plans and successful competition for funding could help facilitate management strategies to accommodate the slight increases. The cost of Forest Service planning and implementation at $298,000 would be similar to alternative E.

Cost of Designation
Table V-4

No costs are listed for land acquisition. Land acquisition and recreation development may be pursued after a wild and scenic river management plan is developed. Planning and management costs would increase above current levels. This table lists the additional funding needs for a five-year period for each of the study rivers *if the river is designated by Congress.*

River	Implementation Cost	Management Plan	O&M Cost	Total
Canyon Creek	3,000	35,000	2,000	40,000
Empire Creek	1,000	15,000	1,000	17,000
Downie River	2,500	40,000	3.500	46,000
Lavezzola Creek	2,000	25,000	2,000	29,000
Pauley Creek	4,000	40,000	4,000	48,000
New York Ravine	500	10,000	500	11,000
North Yuba River	7,000	150,000	10,000	167,000
Oregon Creek	1,000	15,000	1,000	17,000
Middle Yuba Riv.	4,000	50,000	5,000	59,000
East Fork Creek	1,000	15,000	1,000	17,000
Macklin Creek	500	10,000	500	11,000
Humbug Creek	3,000	20,000	3,000	26,000
Lower South Yuba River	7,000	200,000	10,000	217,000
Upper South Yuba River	3,000	55,000	5,000	63,000
Fordyce Creek	1,500	15,000	2,000	18,500
NF of NF American	1,000	10,000	500	11,500
Little Granite	500	10,000	500	11,000
Big Granite	1,000	15,000	1,000	17,000
New York Canyon	500	8,000	500	9,000
NF of MF American River	2,500	35,000	2,500	42,000
Grouse Creek	500	8,000	500	9,000
Screwauger Can.	500	5,000	500	6,000
Rubicon River	2,000	20,000	2,000	24,000

Implementation costs: initial signing and public information handouts
Management Plan costs: developing management plan and official boundaries
O&M costs: additional costs for day to day management and maintenance.

Visual Resources

Introduction

The rivers that are recommended for designation receive an appropriate visual quality objective (VQO) based on classification as follows:

Wild - preservation VQO

Scenic - retention VQO

Recreation - retention or partial retention based on scenic and recreation values.

Comparing the TLRMP adopted VQOs with changes due to scenic and wild designations will help identify required changes in management and the ensuing consequences. In some alternatives different river classifications are recommended which may be different than the present TLRMP allocation and may suggest different consequences. The following is a discussion of the potential impacts to visual resources. The specific recreation activities for each river are described in Appendix D where each river is described.

Alternative A

Designating all twenty-two rivers would put additional emphasis on meeting visual quality objectives established for areas within the river corridors. The rivers classified as wild would be managed to maintain a natural-appearing landscape at a VQO of preservation. Rivers classified as scenic, would be managed for a VQO of retention. Rivers classified as recreational would be managed under a VQO of retention or partial retention. The areas managed for retention would be those places which typify the outstanding scenic values for which the river was recommended, and areas which receive a large amount of recreation use. Areas managed for partial retention would be those areas with lower recreation use, areas generally not seen by the public and areas viewed beyond foreground. In these areas, improvements would be designed to blend in with the existing visual setting and would be considered to be compatible with the overall visual management objectives.

The main visual consequence of designating all twenty-two streams would be a shift in the VQOs from modification and partial retention to partial retention, retention and preservation.

Table V-5 lists each river and the shift of VQO's. VQOs adopted for an area apply only to National Forest System land.

Several of the streams were identified as having outstandingly remarkable scenic values. Management direction to protect or enhance the scenic values when these streams are recommended would be part of a management plan. Various strategies to address this direction would be considered when a management plan is created after designation. The streams identified as having outstandingly remarkable scenic values are: North Yuba River, Middle Yuba River, East Fork Creek, lower South Yuba River, North Fork of the North Fork American River, Granite Creek, New York Canyon, North Fork of the Middle Fork American River, and Grouse Creek.

Alternative B

In this alternative all the rivers would continue to be managed for the VQOs set forth in the TLRMP. Choosing this alternative would not in itself initiate any changes to forest scenic quality and it would not provide any additional protection for scenic values on the forest.

Over time, without designation it is possible that some of the rivers could be developed with reservoirs and associated facilities. If reservoirs are developed on some of the main rivers such as the North, Middle, and South Yuba Rivers the visual change would be dramatic. The change would be from a moving river and associated canyon to a flat water reservoir. Aesthetically, both settings can be very attractive but the character is quite different. A reservoir also would introduce additional elements into the landscape such as the dam structure itself, powerhouse, powerlines, roads, parking areas, boatramps, and lighting. Many of these elements can be planned to blend in with the natural setting but there is usually a more developed look with reservoir environments.

Alternative C

Designation of three rivers would cause only a slight shift of VQOs for these rivers. For Canyon Creek the VQOs would shift from modification to retention because of the scenic designation. The North Yuba River VQOs would shift from modification and partial retention to retention only below the Highway 49 bridge where it is recommended for scenic designation. The South Yuba River VQOs would shift from modification and partial retention to retention and some partial retention. For much of these river miles the VQO is already

established and designation would provide an additional emphasis to protect views of and from the river. Over all, these rivers have a high level of naturalness and the emphasis would be to maintain this quality. On the banks of the North Yuba there are three small communities where human habitation and changes to the landscape are quite evident. The historic value of the homes and shops in these two towns are immediately visible and contribute an additional visual diversity in the landscape. VQOs are not applied to these town settings because they are on private land.

The remaining rivers would not be recommended and the effects on those rivers would be similar to those as described in Alternative B. Over time, the remaining rivers could be developed with small hydroelectric or large dam projects. The consequences of large dam development are described in Alternative B and could apply to those streams not recommended in this alternative.

Alternative D

Alternative D would maintain existing levels of visual quality or put a moderate increase in emphasis on visual quality by shifting some rivers; VQO's from modification and partial retention to partial retention and retention. The classification of several rivers has been modified from wild to scenic. These rivers would generally receive a retention VQO that would maintain high levels of scenic quality. In this alternative broader land management activities would meet partial retention and retention VQO's and, therefore, the landscapes would maintain their natural look. In the immediate foreground occasional mining activities and cabins would be visible to river users as they are now. This alternative would not change the visual character of these existing uses.

Alternative E

There would be a moderate to slight shift in emphasis on visual quality and resulting VQO's. The main change in VQO's is with the four rivers which are classified wild. The remaining rivers (Oregon Creek, Fordyce Creek, and upper South Yuba River) would retain their existing adopted VQO's of partial retention or retention. All of these rivers except the upper South Yuba River have a fairly natural looking landscape. Designation of the upper South Yuba River would not change the existing visual condition but it would tend to retain the natural landscape scenes and help emphasize the existing retention VQO's.

Alternative F

There would be a moderate shift in VQOs for the fifteen rivers recommended in this alternative. Although the shift is similar to the other alternatives, these rivers are less likely to have water projects developed and, therefore, they are not likely to preclude any significant future water projects. Visual quality along the remaining rivers not recommended would not change in the short-term. In the long-term, visual impacts from water projects described in Alternative B are similar for this alternative.

The main shift in visual protection would apply to the rivers classified as wild, where almost any management activity which affects the visual quality would be precluded except small-scale activities that are consistent with wild values. New foot trails and minor bridges would be the main extent of future development activities. The remaining recommended rivers would retain most of the same adopted VQOs assigned in the TLRMP.

Table V-5
Shift of visual quality objectives
(should wild and scenic river designation take place)

North Yuba River Drainage

River	Classification	Existing VQO	New VQO
Canyon Creek	Scenic	partial retention modification	retention partial retention
	Wild	*modification*	*preservation*
Empire Creek	Scenic	partial retention	retention and PR
	Wild	partial retention	*preservation*
Downie River	Recreation Wild	partial retention partial retention	retention and PR preservation
Lavezzola Creek	Scenic Wild	partial retention partial retention	retention and PR preservation
Pauley Creek	Scenic	partial retention	retention and PR
New York Ravine	Recreation	retention, PR,& Mo	retention and PR
North Yuba River	Recreation Scenic Wild	retention retention retention	retention retention preservation

Middle Yuba River Drainage

River	Classification	Existing VQO	New VQO
Oregon Creek	Recreation	modification	partial retention
Middle Yuba Riv	Scenic Wild	partial retention partial retention	retention and PR preservation
East Fork Creek	Scenic Wild	modification partial retention	retention and PR preservation
Macklin Creek	Scenic	modification	partial retention

South Yuba River Drainage

River	Classification	Existing VQO	New VQO
Humbug Creek	Scenic	Mod. and PR	retention and PR
	Wild	Mod. & retention	preservation
Lower South Yuba River	Recreation	partial retention	retention and PR
	Scenic	PR	retention and PR
	Wild	PR	preservation
Upper South Yuba River	Recreation	PR & retention	PR & retention
	Scenic	PR & retention	PR & retention

North Fork American River Drainage

River	Classification	Existing VQO	New VQO
NF of NF American	Wild	modification	preservation
Little Granite	Scenic	partial retention	partial retention
		preservation	preservation
Big Granite	Wild	retention	preservation
	partial retention	preservation	
New York Canyon	Wild	retention	preservation

Middle Fork American River Drainage

River	Classification	Existing VQO	New VQO
NF of MF American River Include Grouse Screwauger Can.	Wild	retention	preservation
	Scenic	retention and partial retention	retention and partial retention
Rubicon River	Wild	preservation	preservation
	Scenic	partial retention	retention or partial retention

Heritage Resources

The assessment of the environmental consequences to the heritage resources is based on known information only. Inventories of heritage resources have not covered all of the rivers nor have all the sites along the rivers been evaluated for National Register eligibility. The following discusses the heritage resources impacts.

Alternative A

Classification of a river as wild, would provide the greatest protection of heritage values from project activities such as timber harvesting, development of utilities, water-supply facilities or flood-control facilities, recreation development, road construction, new mining operations. With scenic or recreational classifications, protection of heritage values from destruction would be limited. The development of utilities and water-supply and flood control facilities, may permit a level of protection of a some heritage values through interpretation.

Although wild and scenic river status provides a level of protection for heritage resources along rivers, there is the potential to increase looting and vandalism. The Forest expects that there may be a short-term, 2-3 year increase in use of rivers receiving wild and scenic status; after that period, use along a river generally returns to previous levels.

Alternative B

Currently, there is no mechanism that protects heritage resource values from destruction, either through project activity or illegal acts, along any of the rivers within the TNF. Heritage values can be preserved subsequent to or pending evaluation for National Register listing, but these values can be mitigated and allow for the destruction of the resource. Such evaluations may be undertaken as part of agency compliance with the National Historic preservation Act (NHPA), but are often deferred as projects are redefined and potential impacts are avoided. Designation of special resource areas is one mechanism the Forest Service has by which it can protect heritage resources from destruction; wild and scenic river designation is another such means.

Classification of a river as wild would provide the greatest protection of heritage values from project activities such as timber harvesting, development of utilities, water-supply, and flood control facilities, recreation development, road construc-

tion, new mining operations and grazing would be limited. With scenic or recreational classifications, protection of heritage values from destruction would be limited to development of utilities, water-supply, and flood-control facilities, but they may permit a level of protection of a heritage values through interpretation.

Non-designation does not curtail land use activities (such as timber harvesting, mining, water/power development); thus, there would be a long-term potential to diminish heritage values along rivers as a result of looting and/or vandalism. Subsequently, the potential for looting and vandalism is greater under non-designation. During the initial time period following designation, river corridors containing significant or unevaluated heritage resources need to be monitored to determine if looting or vandalism increases.

Alternative C

The recommended classifications would protect the outstandingly remarkable heritage values documented along the three rivers. Additionally, the heritage values identified on Humbug Creek would be protected by precluding any potential dam along the lower segment of the South Yuba River. The outstandingly remarkable heritage values along Canyon Creek would also be protected.

Alternative D

The change in status from wild to scenic would not compromise the heritage values present at the rivers listed; but, the elimination of the South Yuba River and Humbug Creek from consideration would leave the significant heritage values located along those rivers vulnerable to destruction as discussed under Alternative B.

Alternative E

This alternative leaves the outstandingly remarkable heritage values identified for Canyon Creek, Lavezzola Creek, the North Yuba River, East Fork Creek, the lower portion of the South Yuba River, and the Middle Yuba vulnerable to destruction as discussed under Alternative B.

Alternative F

This alternative leaves the outstandingly remarkable heritage values identified for Canyon Creek, the North Yuba River, the South Yuba River, Humbug Creek, and the Middle Yuba River vulnerable to destruction as discussed under Alternative B.

Botanical Resources

Introduction

The effects of designating any of the rivers or streams as wild, scenic, or recreation would have effects on threatened, endangered, or sensitive plants because some of the plants are known to occur along some of these corridors. Current management direction for sensitive plants is to protect or minimally impact them from direct and indirect impacts such as timber harvest or trail construction. Increased public use from designation can be expected for a few years, which would create the possibility of impacts from illegal collection and trampling, although the overall impacts would be minimal.

Potential impacts to ecologically significant plant communities due to non-designation (i.e., vernal pools, fens, riparian habitats, and meadows) would be the same as the current situation. The larger or known riparian areas, fens, vernal pools, and meadows would continue to be protected under the TLRMP guidelines, with possible impacts to the smaller and unmapped habitats. The overall impact without designation is unknown. For detailed botanical and ecological analysis information, please reference the *Biological Evaluation for Sensitive Plants in the Westside Wild and Scenic River Evaluation*, Tahoe National Forest, July 29, 1994: Kathy Van Zuuk, Forest Botanist.

Ecological: The effects of implementing the alternatives is discussed below by plant community. Generally, the effects to a plant community are linked to designation versus non-designation of a specific river or stream. It is assumed that the plant community exists in the identified potential habitat until that habitat is surveyed and it is shown that the plant community is not there. Most of the potential habitat along the study corridors has not been surveyed. The effects of designation versus non-designation are discussed below:

Vernal pools: Little management direction is available to protect the majority of vernal pool plants. Designation of rivers would provide protection of these plants and plant communities (if they exist there). There are no known vernal pools along any of the streams considered in this document. There is potential habitat for these communities within the study corridors along East Fork Creek, Macklin Creek, and Fordyce Creek (Alternative A recommends designation of these creeks, Alternatives E and F recommend Fordyce Creek, and Alternative F recommends Macklin Creek). Significant increases in recreational use within these habitats (while they were wet) would impact these plant communities and contribute to their decline. Recreational use in these communities after they had dried up (that did not compact the soil) would not impact these communities. Recreational use is not expected to be significant; therefore, designation of these corridors would create a small (low) risk to these plant communities.

Non-designation of these rivers (Alternatives B-F) could impact these plants if they grow along these rivers and those locations would be inundated by water should a dam be constructed. Eliminating these possible occurrences would contribute to a decline for the overall distribution of these plant communities because these habitats are fragile and have received extensive disturbance historically.

Riparian areas and fens: There have been dramatic reductions in riparian habitats nationwide. There are known riparian areas (of varying size) along all of the creeks within the proposed project area. Fens are unique riparian plant communities. There is potential for fens within the study corridors along all of the streams being analyzed. Increased recreational use within riparian habitats would impact these plant communities and contribute to their decline. These impacts would include walking on these plants and illegally collecting them. Recreational use is not expected to be significant, therefore, designation of these corridors would create a small (low) risk to these plant communities. Alternative A, which recommends all creeks, would provide the greatest protection for riparian plant communities. Alternatives D and F each recommend designation of 15 streams and would provide the second most amount of protection for riparian plant communities within the study corridors. Alternative B, which does not recommend any designations, would provide the least amount of protection for these plant communities.

Non-designation of these rivers would impact these communities if they would be inundated by water should a dam be constructed. Eliminating these plant communities would add to the decline of riparian plants and dependent animals (including specific insects, amphibians, and fish) and could impact water quality.

Old-growth areas: The amount of old-growth that exists today is substantially less than what existed in the past. The importance of these communities centered on watercourses was pointed out in the Tahoe National Forest (TNF) recommendations for fish and late-seral-stage wildlife (Chapel, et al., 1992). There are known old-growth communities (of various sizes and shapes) along Canyon Creek, Downie River, Empire Creek, Lavezzola Creek, Pauley Creek, North Yuba River, East Fork Creek, Oregon Creek, Middle Yuba River, Humbug Creek, Fordyce Creek, South Yuba River (upper and lower), North Fork North Fork American River, Big Granite Creek, Little Granite Creek, New York Canyon, North Fork Middle Fork American River, Grouse Creek, Screwauger Canyon, and the Rubicon River.

In addition, the Canyon Creek, Downie River, Pauley Creek, Lavezzola Creek, and Empire Creek corridors and surrounding ridges is the largest, unroaded mixed-conifer ecosystem within the general region (Plumas, Eldorado, Lassen, and Tahoe National Forests). This area is considered ecologically significant.

Designation of these rivers as wild, scenic, or recreational would provide for greater protection for these plant communities. It would insure that disturbances within

the study corridors did not impact the outstandingly remarkable values that were identified in the eligibility process. Designation would bring additional attention and emphasis to protection of ecological values and would protect these remaining stands from possible inundation and fragmentation. The streams represent a significant old-growth ecosystem. Alternatives A, D, and F recommend designation of the streams as wild and scenic and provides additional protection for this old-growth ecosystem.

Non-designation of these rivers could impact these communities if they would be inundated by water should a dam be constructed. Eliminating these plant communities would add to the decline in the amounts of old-growth habitat and old-growth dependent resources, and could impact water quality.

Meadows: Meadows comprise only 10 percent of the land area of the Sierra Nevada of California. There are known meadows of various sizes and shapes within the study corridors along Pauley Creek, Lavezzola Creek, North Yuba River, Oregon Creek, Middle Yuba River, Little Granite Creek, East Fork Creek, Macklin Creek, and Rubicon River. There is potential for this plant community to exist within all of the study corridors.

Designation of these rivers as wild, scenic, or recreational would provide for greater protection for these plant communities. Designation would bring additional attention and emphasis to protection of ecological values and would protect these remaining areas from possible inundation. Alternative A provides the greatest protection for meadow plant communities within the study corridors, followed by Alternative D and F. Alternative B provides the least amount of protection.

Non-designation of these rivers could impact these communities if they would be inundated by water should a dam be constructed. Eliminating these plant communities would add to the decline in the amounts of meadow habitat and meadow habitat-dependent resources.

Other factors which were analyzed and were determined to have an effect upon the human environment are discussed in the remainder of this chapter. Rivers not recommended for designation would be managed and protected under management requirements of the respective management plans for National Forest System lands, state park lands, and local county plans for private lands. The following passage is a discussion of the potential impacts to botanical resources.

Alternative A

Under Alternative A the sensitive species *Lewisia cantelowii*, *Lewisia serrata*, *Phacelia stebbinsii* and the watchlist species *Silene invisa*, *Taxus brevifolia*, and *Viola tomentosa* may be impacted due to an increase in recreational use of the

proposed rivers. The threat to these species (except *Lewisia cantelowii* and *Lewisia serrata*) would be low due to the terrain and distance from the river where these plants grow. *Lewisia cantelowii* and *Lewisia serrata* could be further impacted by illegal plant collection as these plants are desireable for rock gardens. The amount of increased use is not expected to be significant. This alternative provides additional protection for *Lewisa cantelowii* and *Lewisa serrata* which would be beneficial. This alternative allows for additional management of potential impacts versus Alternative B where there is not any additional management.

Alternative B

A recommendation for no action could impact all of the known occurrences of sensitive and watchlist species in the proposed drainages. Non-designation of these rivers would not allow for additional protection from potential impacts. These types of habitats could be inundated with water if a dam were constructed, or possibly indirectly impacted by other activities such as timber harvesting.

Alternative C

This alternative would allow for reduced potential impact on the known sensitive and watchlist species occurrences in the North Yuba River, lower South Yuba River, the North Fork of the Middle Fork of the American River, Screwauger Canyon, and Grouse Creek. However, the Downie River, Pauley Creek, Lavezzola Creek, New York Ravine, East Fork Creek, Humbug Creek, Macklin Creek, and the Middle Yuba River where sensitive and watchlist plants are known to occur would not be recommended. Not designating these streams would not allow for additional protection of the sensitive and watchlist plants and their habitats in these areas.

Alternative D

This alternative would allow for reduced potential impacts on the known sensitive and watchlist occurrences in the Middle Yuba River, Pauley Creek, Lavezzola Creek, New York Ravine, North Yuba River, North Fork of the Middle Fork of the American River, Screwauger Canyon, and Grouse Creek. However, the lower South Yuba River, East Fork Creek, Humbug Creek, and Macklin Creek where sensitive and watchlist plants are known to occur would not be recommended. Not designating these streams would not allow for additional protection of sensitive and watchlist plants and their habitats in these areas.

Alternative E

This alternative would allow for reduced potential impacts on the known sensitive and watchlist species occurrences in the New York Ravine, North Fork of the Middle Fork of the American River, Grouse Creek, and Humbug Creek. However, Pauley Creek, Lavezzola Creek, North Yuba River, Screwauger Canyon, East Fork Creek, Macklin Creek, Middle Yuba River, and the lower South Yuba River where sensitive and watchlist plants are known to occur would not be recommended. Not designating these streams would not allow for additional protection of sensitive and watchlist plants and their habitats in these areas.

Alternative F

This alternative would allow for reduced potential impacts on the known sensitive and watchlist species occurrences in the New York Ravine, North Fork of the Middle Fork of the American River, and Macklin Creek. However Pauley Creek, Lavezzola Creek, North Fork of the Yuba river, Screwauger Canyon, Humbug Creek, Middle Fork of the Yuba River, and the Lower South Yuba River where sensitive and watchlist plants are known to occur would not be recommended. Not designating these streams would not allow for additional protection of sensitive and watchlist plants and their habitats in these areas.

Fisheries Impacts

Alternative A

Alternative A maintains the free-flowing nature of streams and would help to prevent fragmentation of aquatic habitats and disruption of habitat connectivity. Rivers are natural travel corridors, and clearly the only travel-way for aquatic species. Under Alternative A, the water, nutrients, and organisms that flow downstream through these systems would not be disturbed by dams, thus providing a diversity of high quality natural habitats for species richness. All of the proposed rivers have excellent fish and aquatic invertebrate populations. Designation of all these proposed rivers would ensure that the rivers remain free-flowing, and would contribute to maintaining the integrity of these aquatic habitats and their associated communities.

Alternative A ensures a half-mile limited activity corridor. This buffer zone (larger than TLRMP SMZ widths) would benefit aquatic resources by reducing the impacts of timber-related activities, such as road and landing construction. This is

especially true for wild rivers, for which no new road construction or other harvest activities are allowed within the half-mile corridor. Stream buffers help to mitigate impacts, such as sediment loading, by placing a buffer zone between the area of activity and the stream. Designation of the proposed rivers, and thus the half-mile corridor, would help to minimize impacts from land management activities.

Designation of wild rivers would limit new mining claims. Effects of mining on fisheries and aquatic resources would be held to current levels with a wild classification, however, a recreational or scenic classification would not temper the impacts, as new claims would still be allowed.

Designation of all proposed rivers and streams would protect habitats of aquatic sensitive species beyond current forest TLRMP guidelines. This is especially important for Macklin Creek, North Yuba River, South Yuba River, East Fork Creek, Oregon Creek, Lavezzola/Downie drainage, and New York Ravine because each of these streams contains one or more Federal category 1 or category 2 species, Forest Service sensitive species, or state species of special concern.

Designation of wild and scenic rivers could have both positive and negative impacts on aquatic resources in terms of recreation. Designation would provide more interpretive opportunities. However, it may also cause heavier recreational use. Possible impacts include heavier foot traffic in the riparian areas, increased dispersed camping, and higher fishing pressure in sensitive areas.

Aquatic research projects, even those which require permanent markers, would likely not be hampered by designation of a river at any level. Wild classification would be especially beneficial to aquatics research because free-flowing rivers provide a place in which to study ecological processes that have not been altered by management activities. Designation of all proposed rivers, whether wild, scenic or recreational, would ensure that long-term research projects would not be disturbed by manipulation of flow patterns (e.g., diversions or dams).

Alternative A is the favored alternative for fisheries and aquatic resources.

Alternative B

In Alternative B, dams and reservoirs could have numerous significant impacts on free-flowing aquatic ecosystems. While there are no imminent dam proposals, the most likely sites for new dams are on the North, Middle, and South Yuba Rivers, and Canyon Creek. If a dam were built on any of the proposed wild and scenic rivers, the free-flowing nature of the river would be permanently lost and would create habitat "islands" by eliminating connectivity. This is of particular concern for aquatic species for which upstream migration is a key part of their life cycle, such as trout. Life cycles and processes of aquatic biota, including plants, invertebrates, and amphibians, are interconnected and often rely on the ability of species to move between aquatic habitats. Nutrient flows, food availability, and temperatures could be dramatically altered with reservoir development. Reservoirs may act as nutrient traps and, depending on the type of dam, water below a reservoir may be significantly warmer than above. Warm water temperatures can have negative impacts on fish and other aquatic organisms that require cold, highly oxygenated water.

Reservoirs often introduce new species into an aquatic system, which can alter or eliminate the native aquatic community. For example, a native cold-water stream community might be replaced by an exotic non-native community adapted to warmer non-flowing waters. Introduced species of fish may out-compete native fish, both in the reservoir and in the river above. Introduced species may also have feeding patterns that utilize different plants and invertebrates than native species, thus altering dominant species of food organisms and in effect changing the entire localized food web.

Hydroelectric projects alter flow regimes and may create migration barriers, either by causing flow to be too low to allow migration, or by installing impassable structures. Small hydroelectric projects often include small to moderate diversions and pour-over dams. These projects are primarily a concern on smaller streams. Hydroelectric structures in streams often disturb connectivity and the natural movement patterns of aquatic species. Under Alternative B new hydroelectric projects may be implemented.

The most significant impact of timber-related activities on aquatic ecosystems is often sediment loading. By filling in

pools and spaces between rocks, sedimentation can result in loss of habitat for both fish and aquatic invertebrates. Under Alternative B, current management guidelines for mitigating timber management impacts on streams would continue to be implemented. Specifically, recommended SMZs would be used as buffer strips to lessen sediment loading and disturbance to riparian areas. Without designation, the additional half-mile river corridor would not be established to provide additional protection for these streams.

Mining, particularly dredging and placer mining, can have significant impacts on streams, localized as well as downstream. Mining often increases sedimentation to aquatic habitats and frequently alters channel bottoms, substrate composition, and stream habitats. Physical changes in a stream can eliminate several important habitat types, including pools and gravel areas for fish spawning. Often, from mining activity, channels are straightened and stream banks are impacted, resulting in changes in the stream flow regimes and disturbed riparian vegetation. For the proposed rivers, potential mining effects vary depending on specific physical and biological characteristics of each stream, and the level of present and future mining activity. Under Alternative B, the effects of mining on aquatic habitats would likely continue at current levels or increase.

In addition to healthy fish populations in the proposed rivers and streams, there are also several sensitive aquatic species. Under Alternative B no additional buffer protection would be given to streams known to have sensitive or federally listed species.

Alternative B is the least desirable alternative proposed for fisheries and aquatic resources because it offers no additional protection through designation for any rivers.

Alternative C

Alternative C would recommend three of the rivers most likely to have future water projects. Designation of these rivers under Alternative C would be favorable for fisheries and aquatic resources. Designation of large rivers, such as the North Yuba River, would also provide protection to their tributaries by preventing impoundments.

Continued mining activities would result in similar impacts to aquatic resources as Alternative B (no action), because none of the streams are proposed for wild status.

Alternative C does not include several streams that provide important habitats for rare aquatic species. New York Ravine, which contains federal category 1 and 2 caddisfly species and East Fork and Macklin Creeks, which both contain Lahontan cutthroat trout, a federally listed threatened species. Lavezzola Creek, Downie River, Pauley Creek, and Empire Creek are also not considered under this alternative. These streams and their tributaries represent a total system of streams with high water quality and excellent aquatic habitats.

Alternative D

Under Alternative D, Canyon Creek, NFMFAR, and North and Middle Yuba Rivers would be recommended as scenic. Since no segments would be recommended as wild under Alternative D, impacts of mining on aquatic habitats could be considerable. Scenic designation would not mitigate potential mining impacts to the same extent as wild. Also, Macklin Creek and East Fork Creek are not recommended (which support Lahontan cutthroat trout, federally threatened), nor is the South Yuba River, which is a potential reservoir site.

Next to Alternative A, Alternative D would recommend the greatest number of streams and has a high potential to protect and benefit fisheries and aquatic resources. Alternative D is more favorable for fisheries and aquatic resources than Alternatives B, C, E, or F.

Alternative E

Alternative E is more favorable for fisheries and aquatic resources than Alternative B. Alternative E would recommend New York Ravine, which contains several unique aquatic invertebrates. However, Alternative E would not recommend the lower section of the South Yuba River, the North Yuba River, or Canyon Creek, thus protection would not be provided to any of these large streams from water development projects. Water development could be detrimental to maintaining the free-flowing character of these streams. Macklin Creek, Middle Yuba River, East Fork Creek, Downie River, Lavezzola Creek, Empire Creek, and Pauley Creek, which all have unique values to aquatic resources, would also not be recommended, thus protection would not be provided to these streams from

future water development projects under the Wild and Scenic Rivers Act.

Overall, Alternative E is not as favorable to fisheries and aquatic resources as Alternatives A or D. It is difficult to assess whether Alternative E, which would recommend 10 streams, is more favorable than Alternative C, which would recommend fewer, but larger, streams. Alternative E is more favorable for fisheries and aquatic resources than Alternative B. Larger streams have a greater risk of losing outstandingly remarkable values.

Alternative F

Several streams with outstanding values to fisheries and aquatic resources would be recommended under Alternative F. However, none of the larger rivers (North, Middle, and South Yuba Rivers, and Canyon Creek) would be recommended. Large, free-flowing rivers have special aquatic values including their natural, and often dramatic, habitats and species composition, which are important to biodiversity and forest health. Under this alternative, the unique characteristics of these rivers would not be protected from future water development projects.

This Alternative is more favorable than Alternative B for fisheries and aquatic resources, but not as favorable as Alternative A or D, because several large streams are not included. Similar to Alternative E, it is difficult to assess whether Alternative F, which proposes a greater number of streams for designation, is more favorable than Alternative C, which proposes for three large streams.

Wildlife

In general, the designation of a river as wild and scenic would be beneficial to wildlife, because the free-flowing condition would be maintained and habitat would not be lost due to impoundments. However, known threatened, endangered, proposed, and sensitive (TEPS) wildlife species would be protected by law and under the TLRMP, regardless of designation. Additional data would need to be collected prior to developing the management plan. Individual river management plans would address mitigation actions to avoid, compensate, or reduce impacts on wildlife species and their habitats along the recommended river corridor. When needed, management plans could be amended to adjust recreational use to the carrying capacity of the areas. In addition, a Biological Assessment/Evaluation

(BA/BE) would be prepared in conjunction with the development of each management plan. The BA/BE would analyze the potential effects of whether the proposed management plan and associated activities would or would not have an effect on any TEPS species and their habitats, and would address specific mitigation actions. In addition, a BA/BE would also be prepared for every future proposed land management activity within each recommended area, and effects on TEPS and other wildlife species would be analyzed and mitigation considered in project-specific National Environmental Policy Act (NEPA) analysis.

Effects on wildlife species and their habitats, including TEPS species, would vary with the amount, type, and location of human management and use. A wild classification would minimize present disturbances and provide long-term protection for the wildlife and their habitats that are located within the recommended corridor. A scenic classification would provide for a lower level of protection and, in some cases, disturbances could increase. A recreational classification would allow the current situation to continue in some areas and allow an increase in resource uses such as mining, road construction, and development in many more areas. In general, wildlife species, specifically TEPS species, would be best protected under a wild designation. For detailed TEPS wildlife analysis information, please reference the *Biological Assessment/Evaluation, Birds, Mammals, Amphibians and Reptiles, Westside Wild & Scenic River Evaluation*, December 21, 1994: Cindy K. Roberts, Assistant Forest Wildlife Biologist. The following passage discusses the potential impacts to wildlife by alternative.

Alternative A

This alternative would maintain free-flowing conditions so wildlife habitat would not be lost due to impoundments. In addition, this alternative recommends the maximum designation for each river, providing additional habitat protection. Habitat within the river corridors classified as wild would be provided the most protection. Scenic classification would allow an increase in activity levels. Recreational classification would allow the most management activities and resource use, and the least protection for species and their habitats.

The designation of the North, Middle, and South Yuba Rivers, North Fork North Fork American River, and North Fork Middle Fork American River would protect the wildlife resource values and high biological diversity in the river corridors by limiting any further development and preventing the high likelihood of future water diversions.

The exceptional outstandingly remarkable wildlife and ecological values (see discussion in Chapter IV) present within the river corridors in the area around Downie River, Pauley Creek,

Lavezzola Creek, Empire Creek, and New York Ravine would be protected under this alternative. However, the ecosystem values of the entire area would be more favorable protected into the future by designating it a Special Interest Area (SIA) or Research Natural Area (RNA), since wild and scenic designation would only maintain the outstandingly remarkable resource values within the half-mile river corridors.

Alternative A would be the most favorable to wildlife, including TEPS species.

Alternative B

Under this alternative, existing water use management activities would continue and permanent long-term preservation of the free-flowing condition and scenic qualities of the rivers would not be provided. Timber harvesting, mining, and grazing within the river corridors would continue as they presently exist. All of these activities, while consistent with current land management plan direction, could adversely affect wildlife species, including TEPS species, of their habitats as they occur within the river corridors.

Activities presently allowed in the river corridors have the potential to alter suitable wildlife habitat, increase habitat fragmentation, directly destroy habitat by water impoundments, and increase human-related disturbances. Under this alternative, current levels of protection would continue and no new data would be collected to identify or protect significant wildlife resources as recreational/development uses increase (see discussion in introduction to wildlife impacts).

The area around Downie River, Pauley Creek, Lavezzola Creek, Empire Creek, and New York Ravine is an area with exceptional outstandingly remarkable wildlife and ecological values (see Chapter IV). This alternative would not provide wild and scenic river protection for the outstandingly remarkable resource values within the river corridor. However, the ecosystem values of the entire area would be more favorable protected into the future by designating it a SIA or RNA, since wild and scenic designation would only maintain the outstandingly remarkable resource values within the half-mile river corridors.

Alternative B would be the least favorable to wildlife, including TEPS wildlife species.

Alternative C

The wildlife values within the river corridors (see Chapter IV) for the three rivers recommended would be maintained to some degree under this alternative. The river and river segments not recommended under this alternative would not be managed to maintain free-flowing characteristics, since future proposed hydroelectric facilities could be constructed. In addition, an increase in management activities is expected, which could negatively disturb wildlife or remove or degrade habitat. Therefore, there would be probable additional adverse impacts on TEPS species or their habitats.

This alternative does not include the Middle and upper South Yuba Rivers, and North Fork North Fork American River, which have high likelihoods of water developments in the future. This would adversely affect many wildlife species, including those associated with late-successional forest, high-quality riparian areas, and areas with little human development and access. However, the designation of the North Yuba River, lower South Yuba River, and Canyon Creek would protect the wildlife resource values and high biological diversity in the river corridors by limiting any further development and preventing the high likelihood of future water diversions.

This alternative does not protect the exceptional outstandingly remarkable wildlife and ecological values (see Chapter III & IV) present within the river corridors in the area around Downie River, Pauley Creek, Lavezzola Creek, Empire Creek, and New York Ravine. However, the ecosystem values of the entire area would be more favorably protected into the future by designating it a SIA or RNA, because wild and scenic designation would only maintain the outstandingly remarkable resource values within the half-mile river corridors.

Canyon Creek is classified as scenic instead of wild under this alternative. Wildlife species, specifically TEPS species, would best be protected under the wild designation. This creek has many values for wildlife, including late-successional habitat, connected habitat to facilitate wildlife movement, high-quality stands of old-growth forest, and high quality bald eagle and red-legged frog habitat. Presently, the river corridor has only a few primitive roads within its boundary, has no water diversions, no development, and numerous foot trails. Factors that preserve wildlife resource values could

be lost if Canyon Creek is not recommended and managed under the wild classification.

Under this alternative, only the lower portion of the South Yuba River is classified as scenic and recreation. The upper portion of the river would not be managed for free-flowing characteristics, because future proposed hydroelectric facilities could be constructed, and wildlife habitat could be lost.

Alternative C would be more favorable for wildlife, including TEPS species, than Alternative B, but not as favorable as Alternatives A, D, E, or F.

Alternative D

The wildlife values within the river corridor (see Chapter IV) for the 14 rivers recommended would be maintained to varying degrees under this alternative because the maximum designation is not recommended for all the rivers. The river and river segments not recommended under this alternative would not be managed to maintain free-flowing characteristics because future proposed hydroelectric facilities could be constructed. In addition, an increase in management activities is expected, which could negatively disturb wildlife or remove or degrade habitat. Therefore, there would be probable additional adverse impacts on TEPS species or their habitats.

This alternative does not include the South Yuba River, which has a high likelihood of water development in the future. This would adversely affect many wildlife species. However, the designation of the North Yuba, Middle Yuba, North Fork North Fork American, and North Fork Middle Fork American Rivers would protect the wildlife resource values and high biological diversity in the river corridor by limiting any further development and preventing the high likelihood of future water diversions.

Classification of the proposed six rivers and creeks changes from all or mostly wild (Alternative A) to scenic in this alternative. Therefore, the outstandingly remarkable wildlife values for each of these rivers could be adversely affected under this alternative.

The exceptional outstandingly remarkable wildlife and ecological values (see Chapter III & IV) present within the river corridors in the area around Downie River, Pauley Creek, Lavezzola

Creek, Empire Creek, and New York Ravine would be protected under this alternative. However, the ecosystem values of the entire area would be more favorable protected into the future by designating it a SIA or RNA because wild and scenic designation would only maintain the resource values within the half-mile river corridors.

Alternative D would be more favorable for wildlife, including TEPS species, than Alternatives B, C, E, and F, but not as favorable as Alternative A.

Alternative E

The wildlife values within the river corridor (see Chapter IV) for the ten rivers recommended would be maintained to varying degrees under this alternative because the maximum designation is not recommended for all the rivers. The river and river segments not recommended under this alternative would not be managed to maintain free-flowing characteristics because future proposed hydroelectric facilities could be constructed. In addition, an increase in management activities is expected, which could negatively disturb wildlife or remove or degrade habitat. Therefore, there would be probable additional adverse impacts on TEPS species or their habitats.

This alternative does not include the North Yuba, Middle Yuba, and lower South Yuba Rivers, which have high likelihoods of water developments in the future. This would adversely affect many wildlife species, including those associated with late-successional forest, high-quality riparian areas, and areas with little human development and access. However, the designation of the upper South Yuba, North Fork North Fork American, and North Fork Middle Fork American Rivers would protect the wildlife resource values and high biological diversity in the river corridors by limiting any further development and preventing the high likelihood of future water diversions.

The outstandingly remarkable wildlife and ecological values (see Chapter III & IV) present within the river corridors in the area around Downie River, Pauley Creek, Lavezzola Creek, Empire Creek, and New York Ravine would be protected under this alternative. However, the ecosystem values of the entire area would be more favorably protected into the future by designating it a SIA or RNA because wild and scenic

designation would only maintain the resource values within the half-mile river corridors.

This alternative recommends a scenic status for North Fork Middle Fork American River, rather than the wild status for this river under Alternative A. The wildlife values of this river, including suitable TEPS habitat, old-growth forest, and riparian habitat, could be adversely affected under this alternative.

Alternative E would be more favorable for wildlife, including TEPS species, than Alternatives B and C, but not as favorable as Alternatives A, D, and F.

Alternative F

The wildlife values within the river corridor (see Chapter IV) for the fifteen rivers recommended would be maintained under this alternative. The highest classification for each of these rivers is recommended, providing additional habitat protection. However, the river and river segments not recommended under this alternative would not be managed to maintain free-flowing characteristics because future proposed hydroelectric facilities could be constructed. In addition, an increase in management activities is expected, which could negatively disturb wildlife or remove or degrade habitat. Therefore, there would be probable additional adverse impacts on TEPS species or their habitats.

The North, Middle, and South Yuba Rivers, which have a high likelihood of water development in the future, are not recommended in this alternative. This would adversely affect many wildlife species, including those associated with late-successional forest, high-quality riparian areas, and areas with little human development and access. However, the designation of the North Fork North Fork American and North Fork Middle Fork American Rivers would protect the wildlife resource values and high biological diversity in the river corridor by limiting any further development and preventing the high likelihood of future water diversions.

This alternative only partially protects the outstandingly remarkable wildlife and ecological values (see Chapter III & IV) present within the river corridors in the area around Downie River, Pauley Creek, Lavezzola Creek, Empire Creek, and New York Ravine because Lavezzola Creek is not recommended. This can diminish the area's value as contributing to a

unique block of late-successional forest and riparian habitat in the Sierra Nevada. However, the ecosystem values of the entire area would be more favorably protected into the future by designating it a SIA or RNA because wild and scenic designation would only maintain the resource values within the half-mile river corridors.

Alternative F would be more favorable for wildlife, including TEPS species, than Alternatives B, C, and E, but not as favorable as Alternatives A and D.

OTHER ENVIRONMENTAL CONSEQUENCES

Adverse Effects that Cannot be Avoided

Some increases in environmental degradation may result from increased recreation use due to designation. Individual river management plans would address mitigation actions to reduce any environmental problems along the recommended rivers. Congressionally recommended rivers would be under the statutory protection of the Wild and Scenic Rivers Act. Rivers not recommended would continue to be managed in accordance with federal, state, and local county plans.

Implementation of any of the alternatives may create some social conflicts between various users, simply because any action or lack of action is acceptable to some people and not acceptable to others.

Local Short-Term Uses of Man's Environment and Maintenance and Enhancement of Long-Term Productivity

Implementation of any alternative would continue to provide opportunities for short-term resource yields. Forest management practiced under either federal or state standards (described in Forest Plans and the California Forest Practices Act) ensure that short-term resource activities do not significantly impair the land's long-term productivity. Congressional designation of any alternative, except Alternative B (No Action), would enhance the long-term free-flowing river recreational opportunities on the river(s) included in that alternative.

Irreversible or Irretrievable Commitments of Resources

An *irreversible* commitment is one in which nonrenewable resources are permanently lost. None of the alternatives result in use or modification of resources that are considered nonrenewable (e.g., minerals). There would be no irreversible commitment of resources. Designation would protect threatened, endangered, or sensitive plants or animals and eligible or listed historic properties from becoming irreversibly lost due to dam construction.

An *irretrievable* commitment is one in which resource production or use is lost while managing an area for another purpose. Implementation of Alternative A would create some slight decline in the production of forest, forage, and mineral resources. Any decline in the use of these resources would result in an irretrievable loss of these resources. All alternatives eliminate or reduce the management of some resources while increasing the management opportunities of others.

In all the action alternatives there is the potential for some level of irretrievable loss of future water development for those rivers recommended for designation.

Designation of a river clearly precludes future dam construction. While there are no formal proposals from water agencies and utility companies at this time, several of the rivers have been identified in the past for potential projects at specific sites, and all the eligible rivers have the potential for small hydroelectric projects. Alternative A would make the greatest commitment to the irretrievable loss of opportunities for water development because all twenty two rivers are recommended. Alternative C, the preferred alternative, would have a moderate impact on the irretrievable loss of future options for water development. Alternative D would have a moderate impact and Alternatives E and F would have slight impacts to the possible irretrievable loss of future water development.

The withdrawal of lands from mineral entry for wild rivers is an irretrievable commitment (subject to valid existing rights) if a given river is recommended and classified as wild. Alternative A would make the largest irretrievable commitment because the highest number of wild rivers are recommended. The preferred alternative would make no irretrievable commitment because no rivers are recommended for wild classification. Alternatives D and F would make moderate commitments and Alternative E would make slight irretrievable commitments due to mineral withdrawal on wild rivers.

Other Effects

None of the alternatives would have adverse effects in terms of energy requirements, conservation potential, or urban quality. No conflicts with federal, regional, or state land use plans have been identified.

Compatibility with State and Local Plans and Policies

There are no known incompatibilities with state and local plans and policies. During the public meeting phase early in the suitability process, Sierra County passed a resolution opposing designation of any rivers into the National Wild and Scenic System within the county. Designation of Canyon Creek, Pauley Creek, Lavezzola Creek, Empire Creek, Downie River, North Yuba River, Middle Yuba River, and New York Ravine would be in conflict with Sierra County's resolution. As a cooperator, the State Parks officially supports designation along the South Yuba River.

CHAPTER VI
LIST OF PREPARERS

LINE ORGANIZATION

John H. Skinner (Tahoe National Forest Supervisor)
Judie Tartaglia (Tahoe National Forest Deputy Forest Supervisor)
Julie Lydick (Nevada City District Ranger)
Jeannie Masquelier (Downieville District Ranger)
Richard Johnson (Foresthill District Ranger)
Pete Brost (Tahoe National Forest - Public Service Director)

INTERDISCIPLINARY TEAM

Philip Horning (Tahoe National Forest - Study Coordinator/Landscape Architect)

Phil was the Wild and Scenic River Coordinator for the Eligibility and Suitability Determination process he also provided expertise in recreation, visual management and with Special Interest Areas. Phil received his Bachelor of Landscape Architecture (1969) from the College of Forestry and Environmental Science at Syracuse, New York. He has served on four National Forests, a State Forest in Australia, and the American Peace Corps in Iran for the Iranian Park Service.

Laura Anne Browning (Tahoe National Forest - Interdisiplinary Team Leader)

Laura is the Interdisplinary Team Leader for the Westside Wild and Scenic River Study. Laura is also the primary writer editor for this document. Laura received her B.S. in Natural Resources Planning, Humboldt State University, Arcata, California. She has served on the Tahoe National Forest since 1990, and worked as a Park Ranger for both Yosemite and Redwood National Parks.

William A. Baker (Tahoe National Forest - Environmental Coordinator)

Bill provided guidance to the planning process to assure requirements of the National Environmental Policy Act were followed. Bill received his B.S. (Forest Management) from the University of California, Berkely in 1965 and is a Professional Forester licensed by the State of California. Bill has been the Environmental Coordinator for the Tahoe National Forest for ten years.

John Corbett (Tahoe National Forest - Lands Staff)

John provided expertise in land status, mineral area management and special uses. Received BS in Forestry in 1960 from the University of Connecticut and has completed postgraduate work in real estate, and is a professional forester licensed by the State of California.

Kathy Van Zuuk (Tahoe National Forest - Botanist/Air Quality Coordinator)

Kathy provided expertise in all areas relating to vegetation and ecological management, including Threatened and Endangered species management for plants. Kathy received a Master of Science Degree in Plant Ecology from Northern Michigan University in 1978. She has work experience with the Michigan Department of Natural Resources, the Lake Tahoe Basin Management Unit, and the Tahoe National Forest.

Ann Carlson (Tahoe National Forest - Fisheries Biologist)

Ann provided expertise on fisheries issues for the study, including the management needs for the federally listed Threatened Lahontan cutthroat trout. Ann received her M.S. in Aquatic Ecology from Utah State University. She has worked for the Tahoe National Forest as a Fish Biologist since 1989.

Donna Day (Tahoe National Forest - Archaeologist)

Donna Day, Assistant Forest Archaeologist, B.A. in Anthropology at CSU, Northridge, Certificate in Cultural Resource Management at CSU, Chico, Graduate Studies at CSU, Chico. Donna worked for the USFS as a District Archaeologist between 1979 and 1988 and then as an Assistant Forest Archaeologist between 1988 to present. Prior to federal service Donna was employed by the Center for Public Archaeology at CSUN as a Project Crew Leader and Small Project Director and as the President in charge of contracts and bidding.

Jim Eicher (Bureau of Land Management - Outdoor Recreation Planner)

Jim is the Outdoor Recreation Planner in the Folsom Resource Area Office. Jim received his M.S. degree in Recreation Administration from California State University Sacramento in 1987 and his B.S. degree in Outdoor Recreation Planning from Oregon State University, Corvallis, Oregon in 1979. Jim has worked in the Folsom office since 1980.

John Bradford (Acting Forest Silviculturist (1993-1995)

B.S. in Bus. Admin. (1973) and BS in Forestry (1977), both from University of Nevada, Reno. Has worked on six National Forests in two regions. Provided expertise in timber management, silvicultural practices, and integrated pest management practices.

Julie Tupper - Forest Hydrologist

BS Biology 1977; grad work in Env Engineering-Water Resource Mgt. Julie has worked for USFS since 1984 as hydrologist.

Blaze Baker (Assistant Forest Botanist)

Blaze provided support and research assistance with the botanical section of the document. Blaze has B.S. degrees in Botany and Biology from Humboldt State University.

Beth Brady (Tahoe National Forest - Fisheries Biologist)

Beth compiled data on fisheries, hydrology, and geomorphology for the study. Beth has done graduate studies in forestry in Switzerland and in aquatic ecology at the University of Kansas. She has worked for the Tahoe National Forest since 1993.

Charly Price (Tahoe National Forest Visual Information Specialist)

Charly designed and illustrated the maps and charts for this document. Charly has been a graphics professional for the Forest Service since 1976.

CHAPTER VII
REFERENCES

California Assembly Bill No. 1200, Chapter 215 relating to wild and scenic Rivers, filed with the Secretary of State July 27, 1989. This bill amends Sections 5093.54 and 5093.545 and adds Section 5093.542 adding several rivers to the California State Wild and Scenic Rivers system.

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The Overland Emigrant Trail Through the Tahoe National Forest, A Search for Remaining Evidence of the Trail, Charles Graydon, 1984. Tahoe National Forest Truckee-Donner Recreation and Park District. July 1992. area.

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USDA, Tahoe National Forest. 1990. Final Environmental Impact Statement for the Land and Resource Management Plan.

USDA, Plumas National Forest. February 1988. Land and Resource Management Plan.

USDA, Eldorado National Forest. December 1988. Land and Resource Management Plan.

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USDA, Forest Service, Forest Service Handbook 1909.12 - Land and Resource Management Planning Handbook, dated 7/87, Chapter 8 - Wild and Scenic River Evaluation.

USDA and USDI National Wild and Scenic Rivers System; Final Revised Guidelines for Eligibility, Classification and Management of River Areas. Federal Register/Volume 47, No 173/Tuesday, September 7, 1982.

USDI, Bureau of Reclamation. May 1986. Newlands Project Proposed Operating Criteria and Procedures, Draft Environmental Impact Statement.

USDI, Bureau of Reclamation. December 1987. Newlands Project Proposed Operating Criteria and Procedures, Final Environmental Impact Statement.

US Army Corps of Engineers, Sacramento District. February 1985. Feasibility Report and Environmental Impact Statement, February 1985.

Wild and Scenic Rivers Act dated October 2, 1968 (P.L. 90-542, 82 Stat. 906, as amended; 16 U.S.C. 1271(note), 1271-1287)

CHAPTER VIII
DISTRIBUTION LIST

Copies of the Study Report/DEIS have been sent to, and comments have been requested from the following:

Federal Agencies and Officials

Eldorado National Forest
The Honorable Dianne Feinstein
The Honorable Barbara Boxer
The Honorable Wally Herger
The Honorable John Doolittle
The Honorable Tim Leslie
US Environmental Protection Agency
US Bureau of Mines
USDA Soil Conservation Service
USDI Fish and Wildlife Service
USDI Bureau of Reclamation
USDI Geological Survey
USDI Bureau of Land Management

State and Local Agencies

California Department of Forestry and Fire Control
California Department of Fish and Game
California Department of Transportation (CALTRANS)
California Department of Water Resources
California Department of Parks and Recreation
El Dorado County Planning Department
El Dorado County Board of Supervisors
Lahontan Regional Water Quality Board
Nevada Department of Conservation and Natural Resources
Nevada County Board of Supervisors
Nevada County Irrigation District
Nevada County Planning Department
Northern Sierra Air Quality District
Office of the Governor, State Clearing House
Parks and Recreation District
Placer County Environmental Health
Placer County Board of Supervisors
Placer County Planning Department
Placer County Water Agency

Sierra County Board of Supervisors
Sierra County Planning Department
Sierra Planning Organization

Special Interest Groups
American Rivers
California Native Plant Society
California Land Management
California Forestry Association
California Association of Four Wheel Drive Clubs
Fibreboard
Friends of the River
Georgia Pacific Corporation
Sierra Pacific Power Company
Sierra Club, Mother Lode Chapter
Sierra Pacific Industries
Siller Brothers
Tahoe Sierra Preservation Council
The Nature Conservancy
Trust for Public Lands
White Water Voyages
Wilderness Society

Appendices

Appendix A. Petition Cover Page
Appendix B. Study Up-date III
Appendix C. Wild and Scenic River Management Guidelines
Appendix D. River Descriptions
Appendix E. Water Diversion Map

PETITION

SINCE
the citizens desire to maintain control of all waterways within the County of Sierra and to allow them and their children to determine their usage now and in the future.

WE, the people of Sierra County, do hereby petition
Mr. Skinner, Forest Supervisor
Tahoe National Forest
To exclude Sierra County from any consideration of inclusion in the
WILD AND SCENIC RIVERS ACT
AND
TAKE whatever other actions are necessary to assure that Sierra County does not become an unintended party to such Federal Act.

Printed Name	Address	Signature
Timothy DeRaps	998 Pike City Rd. Pike	Timothy DeRaps
Laura Littlefield DeRaps	998 Pike City Rd Pike	Laura Littlefield DeRaps
Alice Baird	11 Muck Ct Pike	Alice Baird
Norman Nunes	122 Glory Hole Rd	Norman Nunes Pike City
Jane Elder	997 Pike City Rd Pike	Jane Elder
James L Elder	997 Pike City Rd Pike	James L. Elder
Carroll S. Hayes	P.O. Box 156 Sierra City	Carroll S. Hayes
Patricia M Lawrence		
Patricia M. Lawrence	P.O. Box 407, Downieville	Patricia M. Lawrence
Tom Raymond Parker	PO Box 42 Downieville	Tom Raymond Parker
David L. Lawrence	PO Box 407 Downieville	David L. Lawrence
Jean Roberts	16638 Friar Tuck Grass Valley	Jean Roberts

On this date_____,1993 I, the undersigned, certify that I know the above persons to be residents of Sierra County.

Printed Name_____Signature_____

Upon Completion please return to: Bill Adasiewicz 121 Poplar Lane Pike, Ca. 95960

Appendix A.

Wild And Scenic River Study

UP DATE

May 19, 1994

Phase II Suitability and Environmental Impact Statement

Wild & Scenic Rivers
Tahoe National Forest
P.O. Box 6003
Nevada City, CA
95959

(916) 265-4531

Progress Report

Welcome to our third edition of the Wild and Scenic River update. Spring is in the air and our Wild and Scenic River Staff is hard at work documenting the environmental consequences for the Draft Wild and Scenic River recommendation Legislative Environmental Impact Statement (EIS). As the analysis slowly unfolds, the environmental consequences of Wild and Scenic River designation for 22 rivers are being documented in an Environmental Impact Statement. We have spent a good part of the winter reviewing and incorporating your comments into the analysis and developing alternatives based on those comments. Due to the number of rivers found eligible, an infinite number of alternatives could have been developed; but, because of your comments we have been able to narrow down the number of alternatives to a range which represents your comments and concerns.

Expected Time Table

The next step in the process is to write up all of the analysis information into a legislative EIS. We expect a draft or working copy of the EIS to be completed late this spring. The preliminary draft EIS will be forwarded to our Regional and Washington Offices for internal review over the summer. When we get the document back, we will be revising it where needed and then releasing it for public review. We hope to have the public draft EIS available in the fall of 1994.

California River Bill ???

On the bigger scene, there have been several questions about a California Wild and Scenic River Bill being proposed by Congressman Miller and his Natural Resource Committee. We haven't seen a list of the rivers which would be included in this legislation and we have not heard about a specific date for hearings. Where does the Tahoe National Forest Study fit into all of this?....Our public issues, analysis record, and maps will be available upon request to Congressman Millers committee. People wanting to comment to the committee can use the draft EIS as a source of information to make their argument supporting or rejecting Wild and Scenic River designation. At this point, our study will continue on a separate path developed as a legislative EIS for the Secretary of Agriculture's approval and administrative recommendation to the US Congress.

East Side Study

The preliminary environmental analysis is almost complete for the East Side Rivers (Rivers on the East Side of the Sierra Crest). In the next few weeks, this study will be sent to our Regional Office and Washington Office for review. The Draft EIS for the East Side Rivers is expected to be out for public review in late spring.

Our staff will keep you informed of any timeline changes or new information. Please keep in touch if you have any additional comments or issues you would like to discuss.

Have a Great Spring.....Your Wild and Scenic River Staff...

Appendix B.

Management Guidelines
for
Wild, Scenic, and Recreational
River Corridors

The following guidelines provide general management direction for National Forest lands for recommended and designated Wild, Scenic, and Recreational River corridors and that a more specific Management Plan is developed after Wild and Scenic River designation.

WILD RIVERS

Timber Production: Cutting of trees will not be permitted except when needed in association with a primitive recreation experience (such as clearing for trails and protection of users) or to protect the environment (such as control of fire). Timber outside the boundary but within the visual corridors, will be managed and harvested in a manner to provide special emphasis to visual quality.

Water Supply: All water supply dams and major diversions are prohibited.

Hydroelectric Power: No development of hydroelectric power facilities would be permitted.

Flood Control: No flood control dams, levees, or other works are allowed in the channel or river corridor. The natural appearance and essentially primitive character of the river area must be maintained.

Mining: New mining claims and mineral leases are prohibited within 1/4 mile of the river. Valid claims would not be abrogated. Subject to regulations (36 CFR 228) that the Secretaries of Agriculture and Interior may prescribe to protect the rivers included in the National System, other existing mining activity would be allowed to continue. Existing mineral activity must be conducted in a manner that minimizes surface disturbance, sedimentation, and visual impairment. Reasonable access will be permitted.

Road Construction: No roads or other provisions for overland motorized travel would be permitted within a narrow incised river valley or, if the river valley is broad, within 1/4 mile of the river bank. A few inconspicuous roads leading to the boundary of the river area at the time of study will not disqualify wild river classification. Also, unobtrusive trail bridges could be allowed.

Agriculture: Agricultural use is restricted to a limited amount of domestic livestock grazing and hay production to the extent currently practiced. Row crops are prohibited.

Recreation Development: Major public-use areas, such as large campground, interpretive centers, or administrative headquarters are located outside the wild river area. Simple comfort and convenience facilities, such as fireplaces or shelters may be provided as necessary within the river area. These should harmonize with the surroundings.

Structure: A few minor existing structures could be allowed assuming such structures are not incompatible with the essentially primitive and natural values of the viewshed. New structures would not be allowed except in rare instances to achieve management objectives (i.e. structures and activities associated with fisheries enhancement programs could be allowed).

Utilities: New transmission lines, gas lines, water lines, etc, are discouraged. Where no reasonable alternative exists, additional or new facilities should be restricted to existing rights-of-way. Where new rights-of-way are indicated, the scenic, recreational, and fish and wildlife values must be evaluated in the selection of the site.

Motorized travel: Motorized travel on land or water could be permitted, but is generally not compatible with this classification.

SCENIC RIVERS

Timber Production: A wide range of silvicultural practices could be allowed provided that such practices are carried on in such a way that there is no substantial adverse effect on the river and its immediate environment. The river area should be maintained in its near natural environment. Timber outside the boundary but within the visual scene area should be managed and harvested in a manner which provides special emphasis on visual quality.

Water Supply: All water supply dams and major diversions are prohibited.

Hydroelectric Power: No development of hydroelectric power facilities would be allowed.

Flood Control: Flood control dams and levees would be prohibited.

Mining: Subject to regulations at 36 CFR 228 that the Secretaries of Agriculture and the Interior may prescribe to protect the values of rivers included in the National System, new mining claims and mineral leases could be allowed and existing operations allowed to continue. However, mineral activity must be conducted in a manner that minimizes surface disturbance, sedimentation and pollution, and visual impairment.

Road Construction: Roads may occasionally bridge the river area and short stretches of conspicuous or longer stretches of inconspicuous and well-screened roads or screened railroads could be allowed. Consideration will be given to the type of use for which roads are constructed and the type of use that will occur in the river area.

Agriculture: A wider range of agricultural uses is permitted to the extent currently practiced. Row crops are not considered as an intrusion of the "largely primitive" nature of scenic corridors as long as there is not a substantial adverse effect on the natural-like appearance of the river area.

Recreation Development: Larger scale public use facilities, such as moderate size campgrounds, public information centers, and administrative headquarters are allowed if such structures are screened from the river. Modest and unobtrusive marinas also can be allowed.

Structures: Any concentrations of habitations are limited to relatively short reaches of the river corridor. New structures that would have a direct and adverse effect on river values would not be allowed.

Utilities: This is the same as for wild rivers.

Motorized Travel: Motorized travel on land or water may be permitted, prohibited or restricted to protect the river values.

RECREATIONAL RIVERS

Timber Production: Timber harvesting would be allowed under standard restrictions to protect the immediate river environment, water quality, scenic, fish and wildlife, and other values.

Water Supply: Existing low dams, diversion works, rip rap and other minor structures are allowed provided the waterway remains generally natural in appearance. New structures are prohibited.

Hydroelectric Power: No development of hydroelectric power facilities is provided.

Flood Control: Existing flood control works may be maintained. New structures are prohibited.

Mining: Subject to regulations (36 CFR 228) that the Secretaries of Agriculture and the Interior may prescribe to protect values or rivers included in the National System, new mining claims and mineral leases are allowed and existing operations are allowed to

continue. Mineral activity must be conducted in a manner that minimizes surface disturbance, sedimentation and pollution, and visual impairment.

Road Construction: Paralleling roads or railroads could be constructed on one or both river banks. There can be several bridge crossings and numerous river access points.

Agriculture: Lands may be managed for a full range of agricultural uses, to the extent currently practiced.

Recreation Development: Campgrounds and picnic areas may be established in close proximity to the river. However, recreational classification does not require extensive recreation development.

Structures: Small Communities as well as dispersed or cluster residential developments are allowed. New structures are allowed for both habitation and for intensive recreation use.

Utilities: This is the same as for wild and scenic river classifications.

Motorized Travel: Motorized travel on land or water may be permitted, prohibited or restricted. Controls will usually be similar to surrounding lands and waters.

NORTH YUBA RIVER

Description: The North Yuba River is located in the northern portion of the Tahoe National Forest. The river flows for approximately fourty-five miles from its headwaters at Yuba Pass to New Bullards Bar Reservoir. There are a total of 14,228 acres within the river corridor. The watershed is highly mineralized and characterized by large rock outcrops in the upper reaches with high gradient riffles and frequent deep pools with boulder substrate. There is a complete canopy of willow, alder and lodgepole pine over the channel. The river is easily accessible as Highway 49 parallels 90 percent of the river. The segment above New Bullards Bar is accessible by rough foot trail. Virtually all of the open land along the river is covered by mining claims. Some existing power and telephone lines parallel the highway. There are numerous public campgrounds and picnic sites (some with toilet facilities) along the river corridor. A historic driving tour and six interpretive stops are located along Highway 49 between Oregon Creek and the top of Yuba Pass. The towns of Goodyears Bar, Downieville, and Sierra City are located adjacent the river. Numerous special use permits have been issued along the river corridor including recreation summer homes north of Downieville, water system permits, and commercial rafting permits. There is a seasonal mining camp located at Shenanigan Flat.

Vegetation within the corridor includes riparian, foothill woodland, mixed conifer, and subalpine. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs that give way to lodgepole pine and red fir at the higher elevations. Riparian vegetation is also found in other areas of the corridor primarily in areas where the terrain is moist and shaded. There are known occurrences of *Lewisia cantelowii* (a sensitive plant) within the corridor. There are no other known occurrences of sensitive or watchlist plants or plant communities. There is potential habitat for *Arabis constancei*, *Fritillaria eastwoodiae*, *Lewisia cantelowii*, *Lewisia serrata*, *Phacelia stebbinsii*, and *Scheuchzeria palustris* var. *americana*.

The North Yuba River provides habitat for a variety of sensitive wildlife species. The federally listed endangered bald eagle uses the river corridor. California spotted owls and the northern goshawk also share the corridor. There are both PACs (protected activity centers) and SOHAs (spotted owl habitat areas) within the area to provide for the spotted owls. The river environment is also potential habitat for Pacific fisher and marten. There are healthy populations of rainbow, brown, and eastern brook trout throughout the corridor. There are no other known federally lsted Threatened and Endangered wildlife / fishery species within the area.

Eligibility: The North Yuba River is eligible for its fisheries, heritage resource values, vegetation, scenic, and recreation values. The fishery values were considered of

Statewide significance in terms of fish diversity, quality of habitat and trophy fishery. The cultural values were considered to have *high regional significance and probable national significance* for the extent and complexity of the gold mining history and the existing and potential interpretive opportunities available along the North Yuba River. The recreation values are considered to be regionally significant due to the diversity of river associated recreation activities. The recreation activities range from whitewater rafting to a whole range of day use and overnight camping opportunities as well as the recreation opportunities offered by the local communities and their overnight accommodations and eating establishments. The scenic values were identified as regionally significant due to the dramatic spatial definition of the river canyon, the lush quality of vegetation, and the diversity of scenic opportunities from the landmark Sierra Buttes, to the waterfalls, rapids, and cultural landscapes of the local towns. The vegetation values were considered of regional significance due to the rare nature of *Lewisia* and the likelihood that they are genetically different than other *Lewisia* populations because of geographic isolation.

Classification: During the eligibility phase of the study the North Yuba River was classified as wild, scenic, and recreation. The longest segment from the Yuba Pass area to Shenanigan Flat is classified as recreation due to the level of development along the corridor including towns, roads, and mining claims. The segment from Shenanigan Flat to Race Track Point is classified as wild due to the primitive setting and distinct lack of human development other than a some mining claims. The final segment from Race Track Point to Wambo Bar is classified as scenic due to the existence of a Penstock at Wambo Bar that is clearly visible from the river for over a mile of its length.

Alternatives: This river is found in alternatives A, C (pref), and D.

Recommendation: The North Yuba River was considered to be a worthy addition into the National Wild and Scenic River System because of the National significance of the gold mining history and State level significance of the fishery. In addition the river provides a broad range of recreation opportunities, higher scenic quality, and plant values.

Land Use and Management Direction: The North Yuba River corridor has historically been a major mining district that supported the development of several communities. Downieville, Sierra City and Goodyears Bar date back to the early mining period and continue to this day.

Mining, camping, swimming, fishing, picnicking, hiking, kayaking, and rafting are contemporary uses within the corridor. Sierra County has zoned the majority of the corridor as General Forest with a 600 acre minimum parcel size. A exception to this zoning is in and around the towns of Downieville, Goodyears Bar, Sierra City, and Indian Valley. These communities are zoned for Urban use.

The Tahoe Land and Resource Management Plan resource emphasis for the river corridor from Cut Eye Fosters Bar to Bullards Bar Reservoir is regulated intensive even-age timber management, visual quality along Highway 49, wildlife and watershed values (TLMP MA 023 Pendola). The primary resource emphasis for the remainder of the river are scenic and visual qualities while providing a broad spectrum of recreation opportunities. The lands surrounding the town of Goodyears Bar are to remain available for townsite expansion. New land and resource allocations are deferred if they adversely affect the lands needed for townsite expansion (TLMP MA 022 Goodyears).

Should Congress designate the river, historic, fishery, and recreation values would be enhanced due to the development of a management plan that would emphasize protecting these values. In addition the river recreation and resource values would be protected from damming and inundation.

The estimated cost to create a management plan for the river would be $150,000. At this time no acquisition of private lands is proposed in any alternative and therefore no costs are projected for land acquisition.

LAVEZZOLA CREEK

Description: Lavezzola Creek is located north of Downieville in Sierra County and the Tahoe National Forest. The creek flows for approximately fifteen miles from its headwaters at Spencer Lake and Sunnyside Creek, to its confluence with the Downie River. There is a total of 4,273 acres within the river corridor. Lavezzola Creek is characterized by canyons surrounded by densely forested hills. The stream channel is well confined by a steep bedrock canyon with vertical rock walls in some lower sections. Waterfalls and deep plunge and scour pools are common. In the lower reaches the canyon opens slightly allowing occasional wide flood plains. Access into the creek corridor can be obtained in the lower reaches via Lavezzola Ranch. Access into the creek corridor above Smith Creek is primitive. There are no utility corridors, public facilities, paved roads, or special use permits withint he corridor. There are some private homes located at the Lavezzola Ranch and Empire Ranch areas. The canyon is highly mineralized and there are many mining claims within the corridor.

Vegetation within the corridor includes riparian, mixed conifer, and subalpine. The corridor and surrounding ridges contain some large blocks of old-growth forest. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs that give way to lodgepole pine and red fir at the higher elevations. Riparian vegetation is also found in terrain that is shady and moist. There are known occurrences of *Lewisia cantelowii* within the corridor. There are no other known occurrences of the sensitive or watchlist plants or plant communities within the proposed corridor. There is potential habitat for *Fritillaria eastwoodiae*, *Lewisia serrata*, *Penstemon personatus*, *Phacelia stebbinsii*, *Scheuchzeria palustris* var. *americana*, and *Vaccinium coccinium* within the proposed corridor.

The California spotted owl resides within the river corridor. There is a SOHA (spotted owl habitat area) within the corridor to accommodate the owls. The corridor is also potential habitat for Pacific fisher and marten. Rainbow and Eastern Brook Trout are common within the stream. There are no known federally listed Threatened and Endangered wildlife/fishery species within the study area.

Eligibility: Lavezzola Creek is outstanding for its ecological values. The creek corridor is part of an ecologically significant area of old growth and old growth dependent species. The overall area is approximately 23,000 acres of near natural conditions with extensive stands of old growth. The old growth is complex and includes mixed conifer as well as red fir. There is also vegetation diversity due to the existence of several meadows and rocky openings within the larger area. The vegetation is highly representative of late seral stage ecosystem that is largely intact while also displaying other natural stages of succession. This area is

considered significant for the following reasons: 1. There is a high number of species, 2. The vegetation is mostly intact, 3. The area of old growth is large in size for the Sierras, 4. There is a very dense population of spotted owls in the area, and 5. The dendritic pattern of the streams and tributaries contributes to the integrity of the watershed system as well as the biological ecosystem. Lavezzola Creek also has a regionally significant fishery.

Classification: During the eligibility phase of the study Lavezzola Creek was classified as wild and scenic. The portion of the creek form Smith Creek tributary north is classified as wild due to the primitive setting and distinct lack of access and development. Below Smith Creek the density of mining claims, access, and human development result in a Scenic Classification.

Alternatives: This creek is found in alternatives A and D.

Recommendation: Lavezzola Creek was not considered to be a worthy addition into the National Wild and Scenic River System because its values extend far beyond the quarter mile corridor boundary. The creek is just one of many which flow through a large contiguous block of ecologically diverse forest. This area is currently being studied by SNEP (Sierra Nevada Ecosystem Project) for comprehensive protection.

Land Use and Management Direction: Placer mining, fishing, mountain biking, and hiking are some contemporary uses within the corridor. Sierra County has zoned the majority of the corridor as General Forest with a 600 acre minimum lot size. The California Department of Fish and Game has designated the stream as a Wild Trout fishery. The primary resource emphasis in the Tahoe Land and Resource Management Plan are wildlife, wild trout, and watershed values. Management for the California spotted owl habitat areas and dispersed recreation use is also emphasized (TLMP MA 005 Lavezzola). The Tahoe Land and Resource Management Plan guidelines do not protect the river corridors from future licensing and construction of dams and water projects resulting in flooding of the river resources.

Should Congress designate the river, water quality, ecological values, and recreational values would be enhanced due to comprehensive specific management planning and protection from dams or impoundments that may inundate the resource values.

The estimated cost to create a management plan for Lavezzola Creek is $25,000. At this time no acquisition of private lands is proposed in any alternative and therefore no costs are projected for land acquisition.

CANYON CREEK

Description: Canyon Creek is located along the border between the Tahoe National Forest and the Plumas National Forest. The creek flows for approximately thirty miles from its headwaters to the confluence with the North Yuba River. The watershed is characterized by canyons surrounded by steep hills. There are a total of 8,945 acres within the river corridor. The study corridor is characterized by alders and willows which line the stream channel. The upper banks and ridges are densely covered by conifers. The stream channel is characterized by deep pools, riffles, cascades and bedrock chutes. The Creek flows through a highly mineralized area. Access into the corridor can be obtained at the North Yuba confluence by walking a trail from Shenanigan Flat or along the upper reaches at Poker Flat via two rough dirt roads. There are also several roads and primitive trails which follow old roads into the canyon. Primitive seasonal mining cabins are located near the creek in the Poker Flat area. There are no utility corridors, public facilities, or special use permits within the corridor.

Vegetation within the corridor includes riparian, mixed conifer, and subalpine. The corridor and surrounding ridges contain some large blocks of old-growth forest. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs that give way to conifers and shrubs at the higher elevations. Riparian vegetation is also found in moist areas of the Canyon Creek corridor. There are no other known occurrences of sensitive or watchlist plants or plant communities. There is potential for *Arabis constancei*, *Fritillaria eastwoodiae*, *Lewisia cantelowii*, *Lewisia serrata*, *Penstemon personatus*, *Phacelia stebbinsii*, *Scheuchzeria palustris* var. *americana* within the study corridor.

The canyon is a major wildlife corridor. There are five PACs (protected activity centers) and two SOHAs (spotted owl habitat areas) for the California spotted owl within the study area. The northern goshawk also occurs within the corridor. The canyon is potential habitat for the Pacific fisher. The creek supports a healthy, native population of Rainbow Trout. Fry are common in shallow, gravel-covered areas, and larger individuals are found in riffles and pools. Boulders, deep pools, and whitewater provide excellent cover. There are no known federally listed Threatened or Endangered wildlife / fishery species within the area.

Eligibility: Canyon Creek is outstanding for its heritage resources, scenic resources, and primitive recreation values. The remote canyon contains numerous historic mining sites. These sites include intact mining equipment, town sites, and their associated structures, a whole range of mining activities, and transportation routes. Steep rocky cliffs, deep plunge pools, dramatic waterfalls, and large boulders include some of the scenic values that extend for miles. There is very limited access

to Canyon Creek which allows for primitive recreation opportunities providing solitude from human development.

Classification: During the eligibility phase of the study, Canyon Creek was classified as a wild river with the exception of about two miles of stream centered around the Poker Flat area. This area has been classified as scenic due to the mining camps, roads, and associated structures. The remainder of the river was classified wild due to the lack of roads, human development, lack of evidence of land management activities, and the overall primitive character. There are some mining claims in the corridor but their physical presence remains relatively low key.

Alternatives: This river is found in alternatives A, C (Preferred),and D.

Recommendation: Canyon Creek was considered to be a worthy addition into the National Wild and Scenic River System because of its semi-primitive and primitive scenic values as well as its historic mining values.

Land Use and Management Direction: Canyon Creeks corridor has historically been used for placer and quartz mining purposes. There are several historic mines within the river corridor. Contemporary uses within the corridor include fishing, placer mining, and hiking (in the upper reaches). Canyon Creek is 100 percent on public land. The current Tahoe Land and Resource Management Plan resource emphasis within the river corridor are intensive even-age timber management, visual quality, wildlife and watershed values (TLMP MA 023 Pendola and MA 006 Canyon). The current Tahoe Land and Resource Management Plan guidelines do not protect the river corridor from future licensing and construction of dams and water projects which may flood the river resources.

Should Congress designate the creek, the primitive recreation and historic values would be enhanced by a integrated management plan. The other main land use, placer mining could continue under Alternative C because the river is recommended for a scenic designation. Some mining activities may have to be modified to meet the scenic river designation.

The estimated cost to create a management plan for the river would be $35,000. At this time no acquisition of private lands is proposed and therefore no costs are projected for land acquisition.

DOWNIE RIVER

Description: Downie River is located north of the town of Downieville, County seat for the County of Sierra. The river flows for approximately twelve miles from its headwaters at Rattlesnake Creek and the Western Branch to its confluence with the North Yuba River. There are approximately 3,819 acres within the study corridor. The watershed flows through a highly mineralized area which is characterized by steep forested canyons. There is extensive blocks of old growth mixed conifer and red fir stands. The plants are highly representative of a late seral stage ecosystem that is largely intact. Access into the Downie River can be obtained by using a dirt road which begins in Downieville and ends around Daves Ravine. The Downie River Trail and Rattlesnake Creek Trail provide motorized and nonmotorized access along the creek from Grant Ravine to the headwater area. There are several primitive mining trails within the river corridor. Numerous small rustic cabins and many mining claims are located along this stretch of the river. There are no utility corridors, public facilities, paved roads, or special use permits within the corridor.

Vegetation within the corridor includes riparian, mixed conifer, and subalpine. The corridor and surrounding ridges contain some large blocks of old-growth forest. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs that give way to conifers and shrubs at higher elevations. Riparian vegetation is also found in moist terrain of the river corridor. There are known occurrences of pacific yew within the Downie River corridor. There are no other known occurrences of sensitive or watchlist plans or plant communities. There is potential for *Arabis constancei*, *Fritillaria eastwoodiae*, *Lewisia cantelovii*, *Lewisia serrata*, *Penstemon personatus*, *Phacelia stebbinsii*, *Scheuchzeria palustris* var. *americana*, and/or *Vaccinium coccinium*.

The river corridor also serves as a wildlife corridor. The California spotted owl and northern goshawk both reside within the study area. Two PACs (protected activity centers) lie within the area to provide nesting habitat for the spotted owl. The corridor is also excellent habitat for Willow Flycatcher, Pacific fisher, and marten and provides potential habitat for willow flycatcher. There is a healthy population of Rainbow Trout in the Downie River. The watershed is intact and the water quality is excellent. The federally Endangered bald eagle is known to forage along the Downie River corridor. There are no known Threatened and Endangered fish species within the corridor.

Eligibility: The Downie River is part of an ecologically significant area for old growth and old growth dependent species. The overall area is approximately 23,000 acres of near natural conditions with extensive stands of old growth. The old growth is complex and includes mixed conifer as well as red fir. There is also vegetation

diversity due to the existence of several meadows and rocky openings within the larger area. The vegetation is highly representative late seral stage ecosystem that is largely intact while also displaying other natural stages of succession. The area is considered significant for the same reasons documented under Lavezzola Creek.
Classification: During the eligibility phase of the study, the Downie River was classified as both wild and recreation. The lower half is classified recreation due to the presence of roads, bridges, cabins, and evidence of management activities. The upper segment, starting near Daves Ravine is wild due to the primitive setting and lack of access. It is recognized that there are mining claims with motorized activities, but the access and broader setting meet the wild criteria for classification.

Alternatives: This river is found in alternatives A and D.

Recommendation: The Downie River was not considered to be a worthy addition into the National Wild and Scenic River System because its values extend far beyond the quarter mile corridor boundary. The creek is just one of many which flow through a large contiguous block of ecologically diverse older forest. This area is currently being studied by SNEP (Sierra Nevada Ecosystem Project) for comprehensive protection.

Land Use and Management Direction: Placer mining, fishing, mountain biking, and hiking are some contemporary uses within the corridor. Sierra County has zoned the majority of the corridor as General Forest with a 600 acre minimum lot size. The primary resource emphasis in the Tahoe Land and Resource Management Plan are wildlife and watershed values. Management for the California spotted owl Habitat Areas and dispersed recreation use is also emphasized (TLMP MA 005 Lavezzola). The Tahoe Land and Resource Management Plan guidelines do not protect the river corridors from future licensing and construction of dams and water projects resulting in flooding of the river resources.

Should Congress designate the river, water quality, ecological values, and recreational values would be enhanced due to comprehensive specific management planning and protection from dams or impoundments that may inundate the resource values.

The estimated cost to create a management plan for the Downie River is $40,000. At this time no acquisition of private lands is proposed in any alternative and therefore no costs are projected for land acquisition.

NEW YORK RAVINE

Description: New York Ravine is located just east of the town of Downieville. The stream flows for approximately two miles into the North Yuba River. There are approximately 837 acres within the study corridor. The stream is characterized by a steep, well confined channel with high gradient flow, dominated by cascades and small waterfalls. Access into the river corridor can be obtained at the mouth of the Ravine at Highway 49 or in the upper reaches of the ravine via a logging road.

Vegetation within the corridor includes riparian, foothill woodland, and mixed conifer. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs. There are known occurrences of *Lewisia cantelowii* and Pacific Yew within the New York Ravine corridor. There are no other known occurrences of sensitive or watchlist plants or plant communities. There is potential habitat for *Fritillaria eastwoodiae*, *Lewisia cantelowii*, *Lewisia serrata*, *Pentemon personatus*, *Phacelia stebbinsii*, and *Vaccinium coccinium*.

Complete information on the fisheries in New York Ravine is not available, but trout are known to occur in the stream. New York Ravine is of biological importance in that it supports a Federal Category 1 species of caddisfly (*Goeracea oregona*), and two Category 2 species of caddisflies (*Farula praelongs*, *Neothremma genella*). *G.oregona* is known to exist exclusively in New York Ravine. New York Ravine is also provides potential habitat for the Pacific fisher.

Eligibility: The unique aquatic resources in New York Ravine are primarily the aquatic invertebrates which are considered "outstandingly remarkable" due to the extremely limited distribution of these Federal Category I and II species. The threatened and endangered status and location of only one population in one stream gives it a high level of significance equivalent to national importance. In addition to the invertebrate populations there are populations of *Lewisia cantelowii* and Pacific Yew, which is unique to the North Yuba drainage.

Classification: During the eligibility phase of the study New York Ravine was classified recreation due to the presence of roads, logging activities, and private residences.

Alternatives: New York Ravine is found in alternatives A, D, E, and F.

Recommendation: New York Ravine was not considered to be a worthy addition into the National Wild and Scenic River System because the caddis fly has a very

limited range of public interest and could be managed under the current Tahoe Land and Resource Management Plan guidelines.

Land Use and Management Direction: New York Ravine has been used historically for timber harvesting. Sierra County has zoned the majority of the corridor as General Forest with a minimum 600 acre lot size. The Tahoe Land and Resource Management Plan resource emphasis is wildlife and water protection. Protection of the caddis fly is also emphasized (TLMP MA 005 Lavezzola). The estimated cost to create a wild and scenic river management plan for New York Ravine would be $10,000. At this time no acquisition of private lands is proposed in any alternative and therefore no costs are projected for land acquisition.

PAULEY CREEK

Description: Pauley Creek is located north of Downieville on the Tahoe National Forest. The creek flows for approximately fifteen miles from its headwaters above Hawley Lake and Snake Lake to its confluence with the Downie River. There are approximately 4,103 acres within the river corridor. The watershed is characterized by open rocky meadows in the upper reaches and heavy forested canyons in the lower segment. Access into the corridor can be obtained by walking in on the second and third divide trails and Pauley Creek Trail or by driving into Gold Valley on four wheel drive roads. There are extensive stands of older mixed conifer and red fir species. The stream channel is characterized by narrow and deep canyons with small deep pools in the upper reaches and lower reaches. In Gold Valley the stream channel is wide and open.

Virtually every foot of Pauley Creek is claimed under the 1872 Mining Law. Seasonal gold mining activity below Gold Valley is intense with many mining camps and cabins along the creek which are reached by trail bikes and OHV's as well as foot trails.

The combination of adjacent undisturbed older forests and meadow habitat at the headwaters to Pauley Creek provides high quality potential habitat for great gray owl, wolverine, and fisher. Marten are known to utilize the area. All of these species are considered sensitive in Region Five of the Forest Service.

Vegetation within the corridor includes riparian, mixed conifer, and subalpine. The corridor and surrounding ridges contain some large blocks of old-growth forest. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs that give way to lodgepole pine at the higher elevations. Riparian vegetation is also found in moist areas of the corridor. There are known occurrences of *Lewisia cantelowii* within the Pauley Creek Corridor. There are no other known occurrences of the sensitive or watchlist plants or plant communities within the proposed corridor. There is potential habitat for *Fritillaria eastwoodiae*, *Lewisia serrata*, *Penstemon personatus*, *Phacelia stebbinsii*, *Scheuchzeria palustris* var. *americana*, and *Vaccinium coccinium* within the proposed corridor.

Eligibility: Pauley Creek is eligible for its ecological and cultural values. The ecological values identified for Pauley Creek are part of an ecologically significant area for old growth and old growth dependent species. The overall area is approximately 23,000 acres of near natural conditions with extensive stands of old growth. The old growth is complex and includes mixed conifer as well as red fir. There is also vegetation diversity due to the existence of several meadows and rocky openings within the larger area. Pauley Creek provides some of the most

extensive meadow areas in this whole complex. The vegetation is highly representative late seral stage ecosystem that is largely intact while also displaying other natural stages of succession. This area is considered significant as documented earlier under Lavezzola Creek.

The cultural values identified are considered to be of national significance due to the high concentration of Petroglyphs and the interface of three distinct native american cultural groups. Additional prehistoric sites continue along the rest of the stream.

Classification: During the eligibility phase of the study, Pauley Creek was classified as scenic. The Creek was classified scenic due to a combination of motorized trail access, four wheel drive access and mining activities.

Alternatives: This river is found in alternative A,D, and F.

Recommendation: Pauley Creek was not considered to be a worthy addition into the National Wild and Scenic River System because its values extend far beyond the quarter mile corridor boundary and do not focus on just specific streams. The creek is just one of many which flow through a large contiguous block of ecologically diverse older forest. These values would be more appropriately managed under an approach that encompasses a larger area that just specific stream corridors. A Special Interest Area is one possibility that could be considered at a later date. This area is currently being studied by SNEP (Sierra Nevada Ecosystem Project) for comprehensive protection.

Land Use and Management Direction: Pauley Creek has historically been a popular placer mining area. Placer mining, fishing, mountain biking, and hiking are some contemporary uses within the corridor. Sierra County has zoned the majority of the corridor as General Forest with a 600 acre minimum lot size. The primary resource emphasis in the Tahoe Land and Resource Management Plan are wildlife and watershed values. Management for the California spotted owl habitat areas and dispersed recreation use is also emphasized (TLMP MA 005 Lavezzola). The Tahoe Land and Resource Management Plan guidelines do not protect the river corridors from future licensing and construction of dams and water projects resulting in flooding of the river resources. Should Congress designate the creek, water quality, ecological values, and recreational values would be enhanced due to comprehensive specific management planning and the protection from dams or impoundments that may inundate the area.

The estimated cost to create a management plan for Pauley Creek is $40,000. At this time no acquisition of private lands is proposed in any alternative and therefore no costs are projected for land acquisition.

EMPIRE CREEK

Description: Empire Creek is located north of Downieville on the Tahoe National Forest. The creek flows for approximately nine miles from its tributary of Red Oak Canyon near Rattlesnake Peak to its confluence with Lavezzola Creek. This area is highly mineralized. There is a total of 2,757 acres within the river corridor. The watershed is characterized by open rocky meadows in the upper reaches and steep heavy forested canyons in the lower segment. The stream channel is narrow and deep with small deep pools in the upper reaches. Access into the corridor can be obtained by a dirt road which parallels the river up to the fork of Red Oak Canyon and Empire Creek Trail. There are no utility corridors, public facilities, paved roads, or special use permits within the corridor. There are some private homes located at the Lavezzola Ranch and Empire Ranch areas. There are many mining claims along the corridor.

Vegetation within the corridor includes riparian, mixed conifer, and subalpine. The corridor and surrounding ridges contain some large blocks of old-growth forest. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs that give way to lodgepole pine and red fir at the higher elevations. Riparian vegetation is also found in other moist areas of the corridor. There are no known occurrences of sensitive or watchlist plants or plant communities within the proposed corridor. There is potential habitat for *Fritillaria eastwoodiae*, *Lewisia cantelowii*, *Lewisia serrata*, *Penstemon personatus*, *Phacelia stebbinsii*, *Scheuchzeria palustris* var. *americana*, and *Vaccinium coccinium* within the proposed corridor.

The creek corridor also serves as a wildlife corridor. Both the California spotted owl and northern goshawk occur within the area. There is a SOHA (spotted owl habitat area) designated for the spotted owls within the corridor. The corridor is potential habitat for Pacific fisher. Both Rainbow Trout and Eastern Brook Trout are found in the creek. There are no known Federally listed Threatened and Endangered Species within the study corridor.

Eligibility: Empire Creek is eligible for its ecological values. Empire Creek is part of an ecologically significant area for old growth and old growth dependent species. The overall area is approximately 23,000 acres of near natural conditions with extensive stands of old growth. The old growth is complex and includes mixed conifer as well as red fir. There is also vegetation diversity due to the existence of several meadows and rocky openings within the larger area. The vegetation is highly representative late seral stage ecosystem that is largely intact while also displaying other natural stage of succession. This area is considered significant for the same reasons documented earlier under Lavezzola Creek.

Classification: During the eligibility phase of the study, Empire Creek was classified as both wild and scenic. The upper reaches of the creek is wild due to the absence of development and access. It is recognized that mining claims exist within the "Wild" segemnt but the extent of these activities including motorized dredging are not predominant enough to change the classification. The lower segment of the creek is classified as scenic due to the road paralleling the creek and the mining claims dotted along the creek as well as private land development.

Alternatives: This river is found in alternative A, D, and F.

Recommendation: Empire Creek was not considered to be a worthy addition into the National Wild and Scenic River System because its values extend far beyond the quarter mile corridor boundary. The creek is just one of many which flow through a large contiguous block of ecologically diverse older forest. This area is currently being studied by SNEP (Sierra Nevada Ecosystem Project) for comprehensive protection.

Land Use and Management Direction: Empire Creek has historically been a popular placer mining area. Placer mining, fishing, mountain biking, and hiking are some contemporary uses within the corridor. Sierra County has zoned the majority of the corridor as General Forest with a 600 acre minimum lot size. The primary resource emphasis in the Tahoe Land and Resource Management Plan are wildlife values and watershed values. Management for the California spotted owl habitat areas and dispersed recreation use is also emphasized (TLMP MA 005 Lavezzola). The Tahoe Land and Resource Management Plan guidelines does not protect the river corridor from future licensing and construction of dams and water projects resulting in flooding of the river resources.

Should Congress designate the creek, water quality, ecological values, and recreational values would be enhanced due to comprehensive specific management planning and the protection from dams or impoundments that may inundate the area.

The estimated cost to create a management plan for the Empire Creek is $15,000. At this time no acquisition of private lands is proposed and therefore no costs are projected for land acquisition.

OREGON CREEK

Description: Oregon Creek is a tributary to the Middle Yuba River. The eligible portion of the creek flows for approximately four miles from High Point Ravine to its confluence with the Middle Yuba River. There are approximately 1,249 acres within the river corridor. The creek is characterized by steep canyon walls and cobble deposition along the pools. The creek bed is mineralized and subject to recreational and seasonal placer mining. The Oregon Creek Grazing Allotment is just adjacent to the quarter mile river corridor in the upper reaches of the creek. There are no utility corridors, public facilities, or special use permits within the corridor with the exception of the Oregon Creek Day Use Area and historical Henness Pass Road which passes over the creek. The day use area at the river confluence consists of toilet facilities, a picnic area, and beach.

Vegetation within the corridor includes riparian, chaparral, foothill woodland, and mixed conifer. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs. Riparian vegetation is also found in other areas of the corridor that are moist and shaded. There are patches of mixed conifer old growth within the corridor. There are no known occurrences of sensitive or watchlist plants or plant communities within the study corridor. There is potential habitat for *Fritillaria eastwoodiae* and *Lewisia cantelowii*. The area is a wildlife corridor. There are two PACs (protected activity centers) and one SOHA (spotted owl habitat area) designated to provide nesting habitat for the California spotted owl within the corridor. There is also potential Pacific fisher habitat within the corridor. There are no known federally listed Threatened or Endangered species within the corridor. The stream is habitat for rainbow trout, California newts and the foothill yellow-legged frog, which are a State Species of Special Concern and federally listed candidate two species. Additionally there is potential habitat for northwestern pond turtle.

Eligibility: Oregon Creek is eligible for its heritage values tied to the covered bridge and Henness Pass road. The bridge is currently listed on the National Register of Historic Places and is tied to the early transportation history of the Henness Pass Road. The Henness Pass road was recently determined to be eligible for listing on the National Register of Historic Places.

Classification: During the eligibility phase of the study Oregon Creek was classified as recreation due to the number of roads and development within the corridor.

Alternatives: Oregon Creek is found in alternatives A, E, and F.

Recommendation: Oregon Creek was not considered to be a worthy addition into the National Wild and Scenic River System because its point specific value, the covered bridge. The river and river features themselves are not noteworthy.

Land Use and Management Direction: The Oregon Creek corridor has historically been used as a transportation route to the gold fields, and as a timber milling site. Picnicking, swimming, fishing, hiking, and recreational gold mining are some contemporary uses within the corridor. Yuba County has zoned the majority of the corridor as Timber Preserve with a 160 acre minimum parcel. Around Celestial Valley the zoning is Agricultural / Rural Residential with a 10 acre minimum lot size.

Should Congress designate the river, the historic covered bridge would get additional protection from future inundation. No other land uses would be affected as the current land use is compatible with the recreation classification. The estimated cost to create a wild and scenic river management plan for Oregon Creek would be $15,000. At this time no acquisition of private lands is proposed in any alternative and therefore no costs are projected for land acquisition.

MACKLIN CREEK

Description: Macklin Creek is a tributary to the Middle Yuba River located within Nevada County and Tahoe National Forest. The creek flows for approximately two miles from its headwaters to the confluence with the Middle Yuba River. The upper two-thirds of the stream has a gentle gradient, dropping into a canyon with numerous falls and cascades. There are approximately 767 acres within the corridor. Aspen and cottonwoods occur in meadow areas, and dense growths of willow and alder border much of the stream. The stream is accessible by trails and a primitive road in the upper reaches. The lower canyon is difficult to traverse. There are no utility corridors, public facilities, paved roads, or special use permits within the corridor. The setting is primarily primitive.

Vegetation within the corridor includes riparian, mixed conifer, and red fir. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs. Riparian vegetation is also found in other areas of the corridor if the setting is moist and shaded. There are known occurrences of *Silene invisa* within the corridor. There are no other occurrences of sensitive or watchlist plants or plant communities known from within the area. There is potential habitat for *Eriogonum umbellatum* var. *torreyanum*, *Ivesia aperta* var. *aperta*, *Ivesia aperta* var. *canina*, *Ivesia sericoleuca*, *Ivesia webberi*, *Scheuchzeria palustris* var. *americana*, and *Vaccinium coccinium*.

The study area has potential habitat for Willow Flycatcher and marten. Macklin Creek hosts a unique fishery. There is a self-sustaining population of Lahontan Cutthroat trout which supports the California State Lahontan Recovery program. There are no known Federally listed Threatened and Endangered wildlife / fishery species within the study area.

Eligibility: Macklin Creek is outstanding for its Lahontan cutthroat trout, federally listed as threatened. This creek is the key contributor to the stocking and restocking program that supports the State Lahontan cutthroat trout recovery program. This specific stream maintained a pure genetic strain of Lahontan cutthroat trout that could be used for restocking programs.

Classification: During the eligibility phase of the study, Macklin Creek was classified as a scenic river due to the presence of roads in the upper reaches of the corridor. The lower segment that drops into the Middle Yuba River is about one mile long and is classified as wild due to the lack of roads, no evidence of logging or management activities, and an overall primitive setting.

Alternatives: This creek is found in alternatives A and F.

Recommendation: Macklin Creek was not recommended as a worthy addition into the National Wild and Scenic River System because the values are already being managed for under the Forest Plan in cooperation with the State of California. There was also concern that additional publicity through designation would be detrimental to managing a stable Lahontan cutthroat trout fishery.

Land Use and Management Direction: Nevada County has zoned the majority of the corridor as Forest and Timberland Preserve with a minimum parcel size of 160 acres. The Tahoe Land and Resource Management Plan resource emphasis for the corridor is regulated even-age timber management, wildlife and watershed values. Protection of the Lahontan cutthroat trout is paramount (TLMP MA 028 Pinoli).

Should Congress designate the river the Lahontan cutthroat trout program would continue on as currently managed. The estimated cost to create a wild and scenic River management plan for the creek would be $10,000. At this time no acquisition of private lands is proposed in any alternative and therefore no costs are projected for land acquisition.

MIDDLE YUBA RIVER

Description: The Middle Yuba River is located east of the town of North San Juan on the Tahoe National Forest and within Yuba, Sierra, bnd Nevada Counties. The River flows for approximately thirty-nine miles from its headwaters at English Meadows and Moscow Meadows east of Jackson Reservoir to Klensendorf Ravine at the Forest administrative boundary. The river flows through a highly mineralized area which is characterized by steep, well-confined canyons. Cascades and numerous falls flow over boulders and bedrock. There are a total of 12,924 acres within the river corridor. Access into the river corridor can be obtained at the Highway 49 crossing near Oregon Creek, Foote Crossing out of Alleghany, Buckeye Ravine primitive dirt road, and around Milton Reservoir. The upper reaches of the river are very difficult to access due to the sheer canyon walls. There are no current utility corridors close to the river. The Yuba County Water Agency has a diversion at the Our House dam and tunnel where water is diverted into New Bullards Bar Reservoir. The Oregon Creek Day Use area is located at the confluence of Oregon Creek and the Middle Yuba River. This day use recreation site consists of toilet facilities, a beach, and picnic area. There are several residents and parcels of private land scattered throughout the lower section of the corridor.

Vegetation within the corridor includes riparian, mixed conifer, and subalpine. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs. Riparian vegetation is also found in other areas of the corridor if the conditions are moist and shaded. There are patches of mixed conifer old growth within the corridor. There are known occurrences of *Lewisia cantelowii, Silene invisa, and Taxus brevifolia* within the corridor. There are no other known occurrences of sensitive or watchlist plants or plant communities within the area. There is potential habitat for *Eriogonum umbellatum* var. *torreyanum, Fritillaria eastwoodiae, Lewisia cantelovii, Lewisia serrata, Penstemon personatus, Phacelia stebbinsii, Scheuchzeria palustris* var. *americana*, and *Vaccinium coccinium.*

The river corridor is a critical wildlife corridor. The federally listed Endangered bald eagle resides within the corridor. California spotted owls and the northern goshawk also share the corridor. There are both PACs (protected activity centers) and SOHAs (spotted owl habitat areas) within the area to provide nesting habitat for the spotted owls. The river environment is also potential habitat for Pacific fisher and marten. There are healthy populations of rainbow, brown, and eastern brook trout throughout the corridor. There are no other known federally listed Threatened and Endangered wildlife / fishery species within corridor.

Eligibility: The Middle Yuba River is eligible for the overall scenic qualities of the river canyon. The box canyons in the upper reaches were identified as special

stream features. The lower segment of the river has historic values associated with the Oregon Creek Covered bridge and the Henness Pass Road. The Bridge itself is on the National Register of Historic Places and the Henness Pass road is considered a very significant historic tie to supplying goods to the historic mining communities along the North Yuba River and beyond.

Classification: During the eligibility phase of the study the Middle Yuba River was classified as both wild and scenic. The majority of the river is classified as wild due to the primitive setting and lack of accessibility. The portions of the river with crossings, logging, and mining camps have been classified as scenic due to the accessibility and development.

Alternatives: This river is found in alternatives A and D.

Recommendation: The Middle Yuba River was not recommended to be added to the National Wild and Scenic River System because the public opportunities to enjoy the scenic values of the Middle Yuba River are quite limited. In addition the value of this river was more limited than some rivers because of the Our House diversion.

Land Use and Management Direction: The river corridor has historically been used as a transportation route for the placer and hardrock mining district. Hiking, mining, and fishing are contemporary uses within the corridor. Nevada and Sierra County have zoned the majority of the corridor as Forest and Timberland Preserve with minimum parcel sizes ranging from 40 acres to 160 acres. The Tahoe Land and Resource Management Plan resource emphasis in the upper river corridor are even-age timber management, wildlife and watershed values, and dispersed recreation (TLMP MA 028 Pinoli). The major resource emphasis along the remainder of the river are regulated intensive even-age timber management, wildlife and watershed values, and primitive recreation qualities (TLMP MA 042 South Yuba). The current Land and Resource Management Plan Guidelines do not protect the Middle Yuba River from future water project licensing.

The estimated cost to create a management plan for the river is $50,000. At this time no acquisition of private lands is proposed in any alternative and therefore no costs are projected for land acquisition.

EAST FORK CREEK

Description: East Fork Creek is a tributary of the upper Middle Yuba River. The creek flows for approximately four miles from its headwaters at Weaver Lake to its confluence with the Middle Yuba River. There are approximately 1,384 acres within the study area. The upper reaches of East Fork Creek flow through a meadow surrounded by steep, heavily wooded hills. The lower two miles of the channel are well confined by a steep canyon and flow at a high gradient. There are 400 foot waterfalls in the lower reaches of the creek. East Fork Creek is located outside of the gold belt. There are no existing utility corridors, public facilities, paved roads, or special use permits within the creek corridor. Access into the creek corridor can be obtained by foot or dirt road near Weaver Lake.

Vegetation within the corridor includes riparian, mixed conifer, and red fir. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs. Riparian vegetation is also found in other areas of the corridor where the terrain is moist and shaded. There are patches of mixed conifer old growth within the corridor. There are known occurrences of *Silene invisa* and *Viola tomentosa* within the corridor. There are not other occurrences of sensitive or watchlist plants or plant communities known from within the area. There is potential habitat for *Erigeron miser*, *Eriogonum umbellatum* var. *torreyanum*, *Fritillaria eastwoodiae*, *Ivesia aperta* var. *aperta*, *Ivesia aperta* var. *cania*, *Ivesia sericoLewisia*, *Ivesia webberi*, *Scheuchzeria palustris* var. *americana*, and *Vaccinium coccinium*.

The East Fork Creek corridor supports the northern goshawk. There is potential habitat for Willow Flycatcher and martens. The stream is an important fisheries stream, as it supports not only healthy populations of rainbow and brown trout, but also Lahontan cutthroat trout (key contributor to the State Lahontan cutthroat trout recovery program). The Lahontan cutthroat trout is also a federally Threatened species. There other known threatened and endangered fish or wildlife species within the corridor.

Eligibility: East Fork Creek is outstanding for its geologic feature. There is a regionally significant waterfall at the head of the creek. The waterfall is a textbook example of waterfall "headcutting" by undercutting of the softer base materials. The ability to see several layers of geologic processes in a natural erosion feature is also seen as outstanding and has high public interpretation potential. The quality, size, and quantity of fish are considered to be of high value. After followup regional comparisons it was determined that the fishery values while quite high were not outstandingly remarkable.

Classification: During the eligibility phase of the study, East Fork Creek was classified as wild and scenic. The majority of the corridor is classified as scenic due to a timber collector road, bridge, and secondary timber access roads. The lower segment of the creek is primitive with no developed access. This portion has been classified as wild.

Alternatives: This river is found in alternative A.

Recommendation: East Fork Creek was not considered a worthy addition into the National Wild and Scenic River System because the range of values was specific to one waterfall at the head of the creek. Other management strategies can be used to protect the waterfall. Contemporary uses within East Fork Creek include fishing and hiking. Hiking to and viewing the waterfall during the summer months is also popular. Nevada County has zoned the majority of the corridor as Forest / and Timberland Preserve with parcel sizes ranging from 40 acres to a 160 acre minimum. The Tahoe Land and Resource Management Plan resource emphasis within the creek corridor is regulated even age timber management, wildlife values, and water shed values emphasizing dispersed recreation (TLMP MA 028 Pinoli). The Tahoe Land and Resource Management Plan does not protect the creek corridor from future licensing of dams or water projects.

No foreclosure, enhancements, or limitations on land use have been identified should East Fork Creek become a Wild and Scenic River. The exception to this fact is that no licensing of dams could take place along the creek as stated in the Wild and Scenic River Act.

The estimated cost to create a management plan for East Fork Creek is $17,000. At this time no acquisition of private lands is proposed in any alternative, therefore no costs are projected for land acquisition.

SOUTH YUBA RIVER (above Lake Spaulding)

Description: The South Yuba River flows for approximately twenty miles from Castle Peak (this includes the Lower Castle Creek tributary) to Lake Spaulding in the mid portion of the Forest. This is also within Nevada County Jurisdiction. There are approximately 6,077 acres within the river corridor. The River is characterized by long pools and large boulder substrate. The river corridor lies outside of a highly mineralized belt located below Lake Spaulding. A major existing utility corridor that includes the Southern Pacific Railroad, Southern Pacific petroleum pipeline, and Interstate 80 parallels the South Yuba River from Yuba Gap to Soda Springs. Also included within this corridor are the high voltage power transmission lines paralleling the freeway. Developed recreation sites along the river include Indian Springs, Big Bend, and Hampshire Rocks Campgrounds. Staging areas for the Sierra Trek Four Wheel Drive Event are located within the river corridor. A recreational summer home tract is located at Big Bend along the side of the river. There is a special use permit for the Peter Grubb Hut issued to the Sierra Club at the beginning point of Castle Creek on the upper end of the river. This is a major transcontinental utility and transportation link. The majority of the river corridor is located on private land.

Vegetation within the corridor includes riparian, mixed conifer, and subalpine. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs. Riparian vegetation is also found in other areas of the corridor that are moist and shaded. There are no known occurrences of sensitive or watchlist plants or plant communities within the area. There is potential habitat for *Erigeron miser*, *Eriogonum umbellatum* var. *torreyanum*, *Scheuchzeria palustris* var. *americana*, and *Vaccinium coccinium*.

The federally listed Endangered specie of bald eagle is found within the river corridor. There are also California spotted owls within the river corridor. The upper reaches of the river have excellent potential for northern goshawk and Sierra Nevada Red fox. There are no other known federally listed Threatened or Endangered botanical or wildlife species. There is a good population of native and non-native fisheries within the river.

Eligibility: The recreation and cultural resources are considered to be outstandingly remarkable due to the high numbers of people using the area in conjunction with the nationally important Overland Emigrant Trail and the tremendous interpretive opportunities presently available. In addition the old Lincoln Highway and the Intercontinental Railroad provided addition historic significance and opportunities for interpretation. These values were the basis of the eligibility.

Classification: During the eligibility phase of the study the river was classified as both recreation and scenic. The segment of river that begins at the Peter Grubb Hut on Castle Peak and ends at the confluence with the South Yuba River was classified as scenic due to the semi-primitive setting with minimal roading and human development. The remainder of the river down to Spaulding Reservoir has been classified as recreation due to the heavy development, accessibility, roading, and past logging activities.

Alternatives: The upper South Yuba River appears in alternatives A and E.

Recommendation: The South Yuba River above Spaulding was not considered to be a worthy addition into the National Wild and Scenic River System. Because the Nationally significant cultural values did not directly relate to the immediate river environment. The river itself was not used for transportation. Designation of the river corridor would not increase he protection of these valuable historic resources nor improve opportunities for public interpretation. The recreation values relate to high use but not to unique or particularly high recreation attributes and therefore do not merit National attention. The recreation values are marginal and the cultural values, although located in the river corridor, do not directly tie into the river environment.

Land Use and Management Direction: The river corridor has historically been used as a major transportation route over the Sierra Nevada mountains. Transportation, hiking, utilities, summer camping and residential use are contemporary uses within the river corridor. Nevada County has zoned the majority of the corridor as forest and with a 160 minimum lot size. The area around the town of Kingvale and Highway 80 have been zoned as Forest, Highway commercial, and single family residential. The Tahoe Land and Resource Management Plan emphasis for the upper corridor (near Castle Peak) is to retain and improve the Willow fly catcher habitat while enhancing dispersed recreation opportunities (TLMP MA 044 Castle). The major resource emphasis along Highway 80 is to continue to place the utilities along the corridor when ever possible to keep other lands from being impacted by these uses. Additional emphasis is to maintain developed recreation sites and provide public, dispersed and winter sports opportunities (TLMP MA 063 Emigrant). The major resource emphasis between Lake Spaulding and Cisco Grove is retaining visual quality (TLMP MA 057 Spaulding). The Tahoe Land and Resource Management Plan guidelines do not protect the river corridor from future licensing or inundation from dams.

Should Congress designate the river, the multiple use activities within the river corridor would be enhanced by a comprehensive river management plan. The placement of utilities and buildings may be limited to accommodate the river management direction. The estimated cost to create a management plan for the Upper South Yuba River would be $55,000. At this time no acquisition of private

lands is proposed in any alternative and therefore no costs are projected for land acquisition.

SOUTH YUBA RIVER (below Spaulding)

Description: This section of the South Yuba River flows for approximately thirty nine miles from the Langs Crossing area to Bridgeport. There are approximately 12,609 acres within the river corridor. Half of the river flows through the Tahoe National Forest while the lower half of the river flows through Bureau of Land Management and State Park Lands. Nevada County has jurisdiction over the river corridor's private lands. The river is characterized by deep pools, cascades, waterfalls, and exposed worn rock outcroppings. The tertiary gravels of the ancient Yuba River have supplied gold to the river over time. The study area is within the Western Metamorphic Belt of the Sierra Nevada. The higher elevations of the river are covered with mixed conifer and oak woodlands.

The river is subject to both commercial and recreational placer and quartz mining. There are no utility corridors within the corridor. Langs Crossing, Edwards Crossing, Purdon Crossing, Highway 49, and the end section of Bridgeport are the major access points to the river. The South Yuba Trail along the north side of the river is scheduled to be extended from the western Forest boundary to Poorman Creek during 1995. Most of the Bureau of Land Management South Yuba River Area lying east of the Forest boundary to Edwards Crossing has been withdrawn from mineral entry for many years. All mining is authorized through a permit system. Private and public lands are dispersed in a checkerboard pattern throughout the river corridor. Large acreage of the private land are owned by large timber/land companies and intensively managed for forest products. The balance of the private lands are in patented claims or tract parcels. There are picnic areas at Keleher and Golden Quartz along the river. These areas have toilet facilities and picnic tables. The portion of river from the town of Washington up to Fall Creek is closed to overnight camping due to high fire hazards. The Lake Spaulding Dam, a major facility owned by PG&E, is located one mile upstream from Langs Crossing. The Spaulding dam is up for relicensing in the year 2003. there are also plans to improve the structure in the future. Bridgeport is a State Area which has toilet, picnic, and visitors facilities. The majority of human activity revolves around the major access points mentioned in the beginning of this section. There are many private homes within the river corridor. Some are within remote sections of the river corridor and many are clustered within and near the town of Washington.

Vegetation within the corridor includes riparian, chaparral, foothill woodland, and mixed conifer. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs. Riparian vegetation is also found in other areas of the corridor were the terrain is moist and shaded. There are patches of mixed conifer old growth within the corridor. There are also known occurrences of *Lewisia cantelowii* within the study corridor. There are no other known occurrences of

sensitive or watchlist plants or plant communities within the area. There is potential habitat for *Arabis constancei*, *Eriogonum umbellatum* var. *torreyanum*, *Fritillaria eastwoodiae*, *Lewisia cantelowii*, *Lewisia serrata*, *Phacelia stebbinsii*, *Scheuchzeria palustris* var. *americana*, and *Vaccinium coccinium*. The river corridor provides a important wildlife migration corridor for a variety of raptors and other species including the federally Endangered species bald eagle and the California spotted owl. The corridor also is potential habitat for northern goshawk, Pacific fisher, and Sierra Nevada Red Fox. The lower river supports both warm water and cold water fisheries, as well as native and introduced species. There are no known federally listed Threatened or Endangered aquatic species known.

Eligibility: The Lower South Yuba River was found eligible because of the scenic, recreational, and cultural values. The recreation use displays a wide variety of activities mostly associated with water oriented day use or appreciation of the historic values. There are high levels of day use and users are from local as well as regional and out of State locations. The South Yuba trails is a National Recreation Trail and the Independence Trail is a unique almost one of a kind wheelchair accessible trail of regional and State significance. The scenic values are of particular note because of the wide variety of high quality features over the 39 mile length of river. Large sculptural smooth boulders and bedroack are one of the major attractions both for scenic and recreation values. Other water features such as pools and falls along with the steep canyon walls are the other scenic values. The cultural valures are also dispersed along the entire length of the river featuring gold rush era history. Of Particular note is the Bridgeport Covered Bridge (1862) which is on the National Register of Historic Places. It is designated as a California State Historic Landmark (#390), as well as being listed as a Registered Civil Engineering Landmark (ASCE. The bridge is the longest single span wooden bridge in the West. For a time, all freight shipped to Virginia City (Comstock Silver Rush was transported across this bridge. Other eligible lists to the National Register of Historic Places are: Virginia Turnpike (1853-1901), Bridgeport Townsite (1849-1940's), Excelsior Mining Ditch (1855-1961), Miner's Tunnel (Circa 1872), Purdon Crossing Bridge (1895), Edwards Crossing Bridge (1904), and Highway 49Bridge No. 17-07 (1921). In addition further upstream there are several early gold mining sites with high potential historic value because the sites were not destroyed by subsequent mining activities. The town of Washington is also an historic town developed during the gold rush.

Classification: During the eligibility phase of the study the lower South Yuba River was classified as wild, scenic, and recreation. The segment from Jordan creek confluence to 0.3 mile below Langs crossing is classified Recreation because of roads, a canal, and a bridge in the corridor. The next segment starts below Langs Crossing and ends approximately one half mile downstream from Fall Creek and is classified as Wild due to the unroaded and primitive character of the corridor. The next segment continues down past the town of Washington to Jefferson Creek

and is classified recreation due to roads, logging, housing, and various forms of human development. The last segment continues from Jefferson Creek to Bridgeport and is classified scenic due to a combination of roads and past logging activities within the quarter mile corridor.

Alternatives: This river is found in alternatives A and C.

Recommendation: The South Yuba River below Spaulding was considered to be a worthy addition into the National Wild and Scenic River System because of its outstanding broad recreation opportunities and high scenic qualities, water associated recreation activities, and historic values.

Land Use and Management Direction: The river corridor has historically been used for a wide range of mining activities and as a transportation corridor and crossing for other historic mining areas. Residential, dispersed picnicking, floating, nature photography, swimming, camping, hiking, mining, and fishing are some of the contemporary uses along the river. Nevada County has zoned the majority of the corridor as General Agriculture and Forest with a 30 to 160 acre minimum. The areas around Washington is zoned as residential agricultural with a 3 acre minimum lot size.

Should Congress designate the river, recreation opportunities, scenic quality, and historic values would be enhanced due to additional management emphasis on these values. Other land use such as logging would be modified in some cases to reduce visual impact within the river corridor. It is possible that some mining activities could be modified to protect the outstandingly remarkable values identified for this corridor. The Tahoe Land and Resource Management Plan resource emphasis for the corridor are regulated intensive even-age timber management, wildlife and watershed values, and maintaining the primitive character by limiting motorized access (TLMP MA 042 South Yuba). The Bureau of Land Management and the State Parks and manage the lower end of the corridor for recreation and wildlife.

The estimated cost to create a wild and scenic river management plan for the South Yuba River would be $200,000. At this time no acquisition of private lands is proposed in any alternative within the Forest Service administrative boundary. The California Department of Parks and have a land acquisition plan for their jurisdiction. Approximately $700,000.000 remains for the purchase of lands from a 2 million dollar land act.

FORDYCE CREEK

Description: Fordyce Creek is located north east of Lake Spaulding in Tahoe National Forest and Nevada County. The creek flows for approximately ten miles from Fordyce Lake to Lake Spaulding. There are a total of 2,987 acres within the river corridor. The watershed is characterized by volcanic and granitic rocks, with rock outcrops commonly occurring. There are cascades and high gradient riffles with numerous small waterfalls. Access into the river corridor can be obtained via a rough dirt road. There are no utility corridors or public facilities within the corridor. The annual Fordyce Jeep Jamboree Trek is authorized by a Special Use Permit within the corridor.

Vegetation within the corridor includes riparian, mixed conifer, red fir, and subalpine. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs. Riparian vegetation is also found in other areas of the corridor where the terrain is moist and shaded. There are pockets of old growth within the corridor. There are no known occurrences of sensitive or watchlist plants or plant communities within the area. There is potential habitat for *Erigeron miser*, *Eriogonum umbellatum* var. *torreyanum*, *Ivesia aperta* var. *aperta*, *Ivesia aperta* var. *canina*, *Ivesia sericoleuca*, *Ivesia webberi*, *Scheuchzeria palustris* var. *americana*, and *Vaccinium coccinium*.

The creeks corridor is potential habitat for both marten and northern goshawk. Eastern Brook Trout are seen primarily in deep pools throughout the Creek. Other trout species may also be present. There are no known federally listed Threatened and Endangered wildlife / fisheries species within the Creeks corridor.

Eligibility: Fordyce Creek is outstanding for its recreational values. The Fordyce Jeep Trail and it's associated event, the Sierra Trek is one of a handful of Nationally known OHV events. The four wheel drive track provides unique challenges and attract participants from around the State and country. At the same time Fordyce Creek and the canyon provide a very scenic and rugged backdrop for the four wheel drive activities.

Classification: During the eligibility phase of the study Fordyce Creek was classified as a scenic river due to the presence of a four wheel drive jeep trail and some low intensity logging activities.

Alternatives: This river is found in alternatives A, E, and F.

Recommendation: Fordyce Creek was not considered to be a worthy addition into the National Wild and Scenic River System because its range of values were

too specific to the Fordyce Jeep Trail. This trail is managed for under the current land and resource management direction.

Land Use and Management Direction: The Fordyce Creek corridor has historically been used as a travel route and popular hiking area. Hiking, Swimming, and Off Road Vehicle treks are contemporary uses within the corridor. Nevada County has zoned the majority of the corridor as Forest and Timberland preserve with a minimum 160 acre lot size. The Tahoe Land and Resource Management Plan resource management emphasis are dispersed recreation and wildlife habitat improvement (TLMP MA 048 Red). Timber management is regulated using special cutting practices for wetland areas. The Tahoe Land and Resource Management Plan does not protect the creek corridor from future water project licensing.

Should Congress designate the river, the Off Road Vehicle activities may be limited to account for the scenic river management requirements. The estimated cost to create a wild and scenic River Management Plan for the Creek would be $15,000. At this time no acquisition of private lands is proposed in any alternative and therefore no costs are projected for land acquisition.

HUMBUG CREEK

Description: Humbug Creek is located partially within Malakoff Diggings State Historical Park. The creek also lies within the Tahoe National Forest and Nevada County. The creek flows for approximately seven miles from its headwaters above the Park to its confluence with the South Yuba River. There is a total of 2,371 acres within the creek's corridor. The upper reaches of the creek flow through a wooded canyon to Pan Ravine. Below Pan Ravine, the channel is cut through a steep inner gorge. The creek is characterized by numerous waterfalls and high gradient riffles. The stream experiences a high degree of sediment loading due to historic mining activity upstream. Access into the creek's corridor is good in the upper reaches with both roads and trails throughout the corridor. The lower segment (below Pan Ravine) is primitive and only accessible by trail. There are private residents in the upper reaches of the corridor. Malakoff State Historical Park also maintains both historical and contemporary facilities within the corridor.

Vegetation within the corridor includes riparian, foothill woodland, and mixed conifer. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs. Riparian vegetation is also found in other areas of the corridor where the terrain is moist and shaded. There are patches of mixed conifer old growth within the corridor. There are known occurrences of *Taxus brevifolia* within the corridor. There are no other known occurrences of sensitive or watchlist plants or plant communities within the area. There is potential habitat for *Fritillaria eastwoodiae*, *Lewisia cantelovii*, *Phacelia stebbbinsii*, and *Scheuchzeria palustris* var. *americana*, within the area.

The California spotted owl resides within the corridor. A PAC (protected activity center) is within the corridor to provide nesting habitat for the California spotted owls. There is potential habitat for northern goshawk, Pacific fisher, and marten. The stream supports a small population of Rainbow trout in the upper reaches. There are no known federally Listed Threatened and Endangered wildlife/fishery species within the corridor.

Eligibility: Humbug Creek is eligible for its recreational and historical values associated with Malakoff Diggings State Historical Park. The values were clearly of National Significance due to unique engineering techniques of the mining and the historical context of the Sawyer Decision. The recreational values tie to the interpretation and recreation opportunities in the park and along Humbug creek down to the South Yuba River.

Classification: During the eligibility phase of the study, Humbug Creek was classified as both wild and scenic. Ultimately it was determined that the segment was too

short and inconsistent with the BLM classification of Scenic for the South Yuba River just a short distance below. The result is the entire stream is classified Scenic due to occasional roads, some buildings and other management activities.

Alternatives: Humbug Creek is found in alternatives A and E.

Recommendation: Humbug Creek was not considered to be a worthy addition into the National Wild and Scenic River System the because the stream does not play a major role in the historic values identified. The historical values are protected under the Malakoff State Historical Park. Humbug creek has a history of early mining exploration and development of a large hydraulic mine just beyond the quarter mile corridor. Hiking, Camping, and Residential are contemporary uses within the corridor. Nevada County has zoned the majority of the corridor as Forest and Timberland Preserve and open Space with a minimum parcel size of 160 acres. The Tahoe Land and Resource Management Plan resource emphasis is regulated intensive even-age timber management, emphasizing wildlife and watershed values. This includes maintaining the primitive character by limiting motorized access into the area (042 South Yuba). The Malakoff State historical park emphasizes preservation of historic features and interpretation with enhancement of wildlife and watershed values.

Should Congress designate the river, the lower portion outside of the park boundary would be protected from flooding and dams. The estimated cost to create a wild and scenic River Management Plan for the Creek is $20,000. At this time no acquisition of private lands is proposed in any alternative and therefore no costs are projected for land acquisition.

BIG GRANITE CREEK

Description: Big Granite Creek is a tributary of the North Fork American Wild River. The creek flows for approximately five miles from its headwaters near Loch Leven Lakes to its confluence with the North Fork American wild River. There are approximately 1,715 acres within the creek corridor. The watershed is mountainous in the upper reaches, while lower reaches of the channel lie within a canyon. Conifers near the channel contribute to good shade canopy in both the upper and lower reaches of the creek. The stream is accessible by a rough foot trail in the upper reaches. The creek is within the mineral belt but due to the steep terrain is not heavily mined. There are no utility corridors, public or private facilities, graded roads, or special use permits within the corridor. The majority of the corridor is located on private land.

Vegetation within the corridor includes riparian, foothill woodland, and mixed conifer. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs. Riparian vegetation is also found in other areas within the corridor where the terrain is moist and shaded. There are patches of mixed conifer old growth within the corridor. There are no known occurrences of sensitive or watchlist plants or plant communities within the area. There is potential habitat for *Firtillaria eastwoodiae*, *Lewisia cantelowii*, *Lewisia serrata*, *Phacelia stebbinsii*, and *Vaccinium coccinium* within the area.

Both California spotted owls and northern goshawk occur within the area. There is a PAC (protected activity center) within the area to provide for the spotted owls. The corridor provides potential habitat for the Pacific fisher and marten. The creek supports large, healthy populations of Rainbow and Brown trout. There are no known federally listed Threatened or Endangered wildlife / fishery species within the area.

Eligibility: Big Granite Creek is outstanding for its scenic quality and primitive recreation values. The canyon has excellent spatial definition (dramatic canyon walls) with large rock outcrops, waterfalls, and plunge pools similar in character to the North Fork American Rier. The recreation opportunities for primitive experiences are of excellent quality and provide real opportunities for solitude.

Classification: During the eligibility phase of the study, Big Granite Creek was classified as a wild river. The river corridor is primitive with no development.

Alternatives: This river is found in alternatives A and F.

Recommendation: Big Granite Creek was not considered to be a worthy addition into the National Wild and Scenic River System because its scenic qualities are already represented in the North Fork American Wild River.

Land Uses and Management Direction: The upper reaches of Big Granite Creek has been historically used for timber harvest. Contemporary uses within the corridor include hiking and fishing. Placer County has zoned the majority of the corridor as "Agricultural" with a 80 acre minimum lot size. No resource uses or values would be enhanced, foreclosed, or limited if this creek was designated. Some of the corridor is located within the protective boundary of the North Fork American Wild River. The resource emphasis for the creek in the Tahoe National Forest Land and Resource Management Plan are dispersed recreation, visual quality, wildlife values, and timber management on a unregulated basis (TLMP MA 081 Snow). Timber in the upper reaches around Warm Lake is to be managed on a long rotation (TLMP MA 076 Loch Leven). Where the creek joins the North Fork American Wild River the resource emphasis is wild river management in accordance with the Wild and Scenic Rivers Act, as amended , and the North Fork American wild River Management and Development Plan. The timber is unavailable for regulated timber production (TLMP MA 082 North Fork).

Current Forest Land and Resource Management Plan Guidelines protect the outstandingly remarkable resources outlined in the river description. The Guidelines do not protect the river corridors from future licensing and construction of dams and water projects resulting in flooding of the river corridor.

The estimated cost to create a management plan for this river would be $15,000. At this time no acquisition of private lands is proposed in any alternative and therefore no costs are projected for land.

LITTLE GRANITE CREEK

Description: Little Granite Creek is a tributary to the North Fork American Wild River located within Tahoe National Forest and Placer County. The creek flows for approximately two miles from Four Horse Flat to its confluence with Big Granite Creek. There are a total of 816 acres within the creek's corridor. The creek is characterized by a steep canyon with a narrow and well confined channel. The canyon walls are nearly vertical bedrock. Access into the creek corridor can be obtained in the upper reaches around Four Horse Flat. There are several logging spur roads and primitive trails in this area. There are no utility corridors, public facilities, paved roads, or special use permits within the corridor.

Vegetation within the corridor includes riparian meadows, foothill woodland, and mixed conifer. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs. Riparian vegetation is also found in other areas of the corridor if the terrain is moist and shaded. There are patches of mixed conifer old growth with the major component incense cedar. There is a large meadow in the Four Horse Flat area. Portions of the Sugar Pine Research Natural Area are within or adjacent to the area. There are no known occurrences of sensitive or watchlist plants or plant communities within the area. There is potential habitat for *Fritillaria eastwoodiae*, *Lewisia serrata*, *phacelia stebbinsii*, and *Vaccinium coccinium* within the area.

Both northern goshawks and California spotted owls reside within the area. There is a PAC (protected activity center) within the corridor to provide for the spotted owls. The corridor is also potential habitat for marten and Sierra Nevada Red Fox. Rainbow trout are abundant in the lower reaches of the Creek. There are no known federally Listed Threatened and Endangered wildlife / fishery species within the area.

Eligibility: Little Granite Creek is eligible for its vegetation and recreation values. The Sugar Pine Research Natural Area is considered to be a bench mark sugar pine resource for the Sierra Nevada. The recreation opportunities along the trail, and access to the North Fork American Wild River, are also considered significant recreation opportunities.

Classification: During the eligibility phase of the study Little Granite Creek was classified as wild due to the primitive setting and the distinct lack of developed access. Classification was revisited after the eligibility phase and due to logging and road development on private land the river was classified as scenic.

Alternatives: This river is found in alternatives A and F.

Recommendation: Little Granite Creek was not considered to be a worthy addition into the National Wild and Scenic River System because its scenic qualities were already represented in the North Fork American Wild River drainage. The majority of the creek lies within the North Fork American Wild River. Timber harvesting has taken place around Four Horse Flat in the upper reaches of the creek. Hiking and fishing are contemporary uses within the corridor. Placer County has zoned the majority of the corridor as Agricultural with a 80 acre minimum lot size. The Tahoe Land and Resource Management Plan resource emphasis are dispersed recreation, visual quality, wildlife values, and timber management on an unregulated basis (TLMP MA 081 Snow). Where the creek joins the North Fork American wild River the resource emphasis is wild river management in accordance with the wild and scenic Rivers Act, as amended, and the North Fork American River Wild River Management and Development Plan. The timber is unavailable for regulated timber production (TLMP MA 082 North Fork). The Tahoe Land and Resource Management Plan does not protect the creek from future dam licensing or the building of water projects.

No land use foreclosure, limitations, or enhancements have been identified if the Creek is designated into the National System. The estimated cost to create a wild and scenic river management plan for the Little Granite Creek is 10,000. At this time no acquisition of private lands is proposed in any alternative and therefore no costs are projected for land acquisition.

NORTH FORK OF THE NORTH FORK AMERICAN RIVER

Description: The North Fork of the North Fork American River is located in the mid-western section of the forest. The river flows for approximately six miles from the mouth of Burnett Canyon to the confluence with the North Fork of the American wild River. The river canyon is well confined in a steep inner gorge. There is a total of 1,522 acres within the river corridor. Pools are common in the upper section, but are fewer in number towards the confluence with the North Fork American Wild River. Due to the steep rocky conditions vegetation is located primarily in the upper ridge tops. Access into the river corridor is by foot and very rugged. There are no utility corridors, public facilities, or special use permits within the corridor. The setting is very primitive.

Vegetation within the corridor includes riparian, foothill woodland, and mixed conifer. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs. Riparian vegetation is also found in other areas of the corridor if the terrain is moist and shaded. There are no known occurrences of sensitive or watchlist plants or plant communities within the area. There is potential habitat for *Fritillaria eastwoodiae*, *Lewisia cantelowii*, *Lewisia serrata*, *Phacelia stebbinsii*, and *Scheuchzeria palustris* var. *americana*.

California spotted owls and the northern goshawk reside in the corridor. There are both PACs (Protected Activity Centers) and SOHAs (spotted owl habitat areas) within the area to provide for the spotted owls. The river environment is also potential habitat for Pacific fisher and marten. There are healthy populations of rainbow trout throughout the corridor. There are no other known federally listed Threatened and Endangered wildlife / fishery species within the area.
Eligibility: The North Fork of the North Fork American River is eligible for its classic hydrological characteristics of an "A" channel with scoured rocks, high waterfalls and deep plunge pools for the entire reach of the stream. These hydrologic values were considered outstandingly remarkable.

Classification: During the eligibility phase of the study, the entire reach of the North Fork of the North Fork American River was classified as wild due to the lack of roads and modern human development. A few mining claims introduce some human development, but the over all effect is low key and consistent with the wild classification.

Alternatives: This river is found in alternatives A, D, E, and F.

Recommendation: The North Fork of the North Fork American River was not considered to be a worthy addition into the National Wild and Scenic River System

because of its limited range of qualities. The main quality identified for this river is the classic type "A" channel. While this stream is considered to have a classic "A" channel there are many classic "A" channels in the Forest.

Land Use and Management Direction: The North Fork of the North Fork American River corridor has historically been used for mining. Due to steep terrain and very difficult access only light dispersed recreation activities including hiking, fishing, and mining take place in the corridor today. Placer County has zoned the majority of the corridor as Agricultural with a 80 acre minimum parcel size. The Tahoe Land and Resource Management Plan resource emphasis for the corridor is regulated intensive even-age timber management (TLMP MA 073 Monumental). A small section of the stream above the confluence with the North Fork American Wild River has been identified as a area to bring back the black oak stands (TLMP MA 059 Casa Loma). The Forest Plan guidelines still do not protect the river from future licensing for water projects and inundation. Standards and guidelines in the Tahoe Land and Resource Management Plan provide specific protection for the stream channel characteristics identified as outstandingly remarkable.

Should Congress designate the river the hydrologic type "A" stream channel, scenic quality, and wildlife value would be enhanced due to the wild designation limiting land management activities and providing protection for these values. Land use that mayy degrade these values, such as logging and mining, would be prohibited or limited due to the wild designation.

The estimated cost to create a management plan for the river would be $10,000. At this time no acquisition of private lands is proposed in any alternative and therefore no costs are projected for land acquisition.

NEW YORK CANYON

Description: New York Canyon is a tributary to the North Fork American Wild River in the mid portion of the forest. The upper reaches of the stream begins with a series of falls and plunge pools of varying size. The creek flows for approximately one mile through a bedrock canyon with rugged rocky walls. There are approximately 504 acres within the river corridor. In the center of the canyon, there is a free falling waterfall that is about 560 feet tall. As the canyon meets with the North Fork American Wild River the gradient decreases. There is a thin strip of riparian vegetation along the stream corridor that opens up into oak stands at the confluence. Access is difficult into the canyon and can only be obtained by foot, without the assistance of trails. New York Canyon flows through a mineralized area however the mining activity is minimal because of the extremely difficult access. There are no utility corridors, public facilities, graded roads, or special use permits within the corridor.

Vegetation within the corridor includes riparian and mixed conifer. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs. Riparian vegetation is also found in other areas of the corridor if the terrain is moist and shaded. There are patches of mixed conifer old growth within the corridor. There are no known occurrences of sensitive or watchlist plants or plant communities within the area. There is potential habitat for *Calochortus clavatus* var. *avius*, *Fritillaria eastwoodiae*, *Eriogonum umbellatum* var. *torreyanum*, *Lewisia cantelowii*, *Lewisia serrata*, *Phacelia stebbinsii*, *Scheuchzeria palustris* var. *americana*, and *Vaccinium coccinium* within the area.

California spotted owls are located within the canyon. A PAC (protected activity center) has been established to provide nesting habitat for the spotted owl. There is also potential habitat for the Sierra Nevada Red Fox. Rainbow trout are found in the lower reaches of the creek. There is also potential habitat for the foothill yellow-legged frog. There are no known federally listed Threatened and Endangered wildlife / fishery species within the river corridor.

Eligibility: New York Canyon is considered eligible for the dramatic high waterfall. The height (over 600 feet) and the sheer drop of the cliffs gives this waterfall enough uniqueness to be considered regionally significant. The outstandingly remarkable values include scenic, geologic, and hydrologic values.

Classification: During the eligibility study New York Canyon was classified as wild due to its primitive setting and the lack of any human development.

Alternatives: This river is found in alternatives A, D, E, and F.

Recommendation: New York Canyon was not considered to be a worthy addition into the National Wild and Scenic River System because the flows decrease dramatically in late spring to the point that there is very little flow and is already protected under the Tahoe Land and Resource Management Plan guidelines.

Land Use and Management Direction: The river corridor is primitive with limited access. Both historic and contemporary use have been extremely light foot traffic. Placer County has zoned the confluence of the canyon as Agriculture with a 80 acre minimum parcel size. The majority of the river corridor is on public land. The Tahoe Land and Resource Management Plan resource management emphasis for the corridor is to maintain a semiprimitive non-motorized natural forest setting that combines dispersed recreation, watershed protection, wildlife habitat management, and visual quality. The timber is unavailable for regulated timber management (TLMP MA 087 American). The lower quarter mile of the river corridor is protected under the North Fork American Wild River Management Plan. The upper section of the river is not protected under Forest management guidelines from future licensing or inundation of water projects.

Should Congress designate the river the waterfall would be protected from future water development. The estimated cost to create a wild and scenic river management plan is $8,000. At this time no acquisition of private lands is proposed in any alternative and therefore no costs are projected for land acquisition.

GROUSE CREEK

Description: Grouse Creek is a tributary to the North Fork of the Middle Fork American River. The Creek is within the Tahoe National Forest and Placer County. The creek flows for just over one mile from a point just above Grouse Falls to its confluence with the North Fork of the Middle Fork American River. There are a total of 543 acres within the river corridor. The corridor is mineralized. Access into the river corridor can be obtained by the Grouse Creek Trail. The creek is characterized by bedrock pools and falls. The upper reaches of the canyon are forested. There are no utility corridors, public facilities, graded roads, or special use permits within the corridor. There is a foot trail to Grouse Falls.

Vegetation within the corridor includes riparian and mixed conifer. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs. Riparian vegetation is also found in other areas of the corridor if the terrain is moist and shaded. The riparian areas are narrow as the creek corridor is narrow. There are patches of mixed conifer old growth within the corridor. There are known occurrences of *Phacelia stebbinsii* and *Taxus brevifolia* within the corridor. There are no other known occurrences of sensitive or watchlist plants or plant communities within the area. There is potential habitat for *Calochortus clavatus* var. *avius*, *Fritillaria eastwoodiae*, *Lewisia cantelowii*, *Lewisia serrata*, *Phacelia stebbinsii*, *Scheuchzeria palustris* var. *americana*, and *Vaccinium coccinium* within the area.

There is potential for Willow Flycatcher to exist within the Creeks corridor. The Creek is a good cold water fishery supporting both Rainbow and Brown trout. There are no known federally listed Threatened and Endangered wildlife / fishery species within the corridor.

Eligibility: Grouse Creek is outstanding for its scenic values. The dramatic height of the cascading waterfalls and steep rocky canyons were identified as the main scenic features.

Classification: During the eligibility phase of the study Grouse Creek was classified as wild due to the lack of roads, no evidence of development or management activities, and an overall primitive setting in very rugged terrain.

Alternatives: Grouse Creek is found in alternatives A, D, E, and F.

Recommendation: Grouse Creek was not considered to be a worthy addition into the National Wild and Scenic River System because the waterfall values are represented in many other wild and scenic rivers and the feature is already protected as a Special Interest Area in the Forest Plan.

Land Use and Management Direction: Grouse Creek provides a source of irrigation water for mining in the North Fork of the Middle Fork American River. Day hiking and viewing the falls are contemporary uses within the corridor. The river corridor is entirely on public land. The Tahoe Land and Resource Management Plan resource emphasis around the falls is protection of scenic qualities and Special Interest Designation (TLMP MA 104 Grouse). Regulated intensive even-age timber management is emphasized in the remainder of the corridor (TLMP MA 092 Peavine).

Should Congress designate the river, recreation and scenic viewing opportunities would be enhanced due to increased emphasis on providing quality recreation facilities through a river management plan. Other land uses, such as timber management, would be limited due to the emphasis on retaining recreation and scenic values. The estimated cost to create a wild and scenic river management plan would be $8,000.

NORTH FORK OF THE MIDDLE FORK AMERICAN RIVER

Description: The North Fork of the Middle Fork American River is located in the southwestern portion of the forest. The river flows for approximately sixteen miles from Screwauger Canyon to its confluence with the Middle Fork American River. The river canyon is well confined in a steep inner gorge. There are a total of 4,789 acres within the river corridor. There are long, shallow pools with frequent channel splitting in the upper section of the stream. the lower section of the stream flows through a steep-walled canyon. Access into the river corridor can be obtained by foot trails or four wheel drive roads. Segments of the Western States Trail, between Michigan Bluff and Last Chance, have been listed on the National Register of Historic Places. There are no utility corridors, public facilities, or special use permits within the corridor. The setting is primitive.

Vegetation within the corridor includes riparian, foothill woodland, and mixed conifer. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs. Riparian vegetation is also found in other areas of the corridor if the terrain is moist and shaded. There are no known occurrences of sensitive or watchlist plants or plant communities within the area. There is potential habitat for *Fritillaria eastwoodiae*, *Lewisia cantelowii*, *Lewisia serrata*, *Penstemon personatus*, *Phacelia stebbinsii*, *Scheuchzeria plaustris* var. *americana*, and *Vaccinium coccinium* within the proposed corridor.

California spotted owls and the northern goshawk reside in the corridor. There are both PACs (Protected Activity Centers) and SOHAs (spotted owl habitat areas) within the area to provide for the spotted owls. There are also winter nesting sites for the American bald eagle (soon to be de-listed as a National Threatened and Endangered Species). The river environment is also potential habitat for Pacific fisher and marten. There are healthy populations of rainbow trout throughout the corridor. There are no other known federally listed Threatened and Endangered wildlife / fishery species within the area.

Classification: During the eligibility phase of the study, the North Fork of the Middle Fork American River was classified as both wild and scenic. The wild segment flows from Screwauger Canyon to about 1/4 mile above the Mosquito Ridge Road bridge. The wild classification is due to the lack of roads, evidence of management activities such as logging, and the overall primitive setting of the canyon. There is one four wheel drive road into the canyon down to the stream but it does not follow the stream for any significant distance. The scenic portion picks up at the bridge and flows to a point approximately 3/4 of a mile upstream from the Middle Fork American River. This point coincides with the official inundation line for the

proposed Auburn Dam previously authorized by Congress. The scenic classification recognizes that there are mining claims and mining activities along this stream

Eligibility: The North Fork of the Middle Fork American River is eligible for recreation and scenic values. These values are considered "outstandingly remarkable" due to the high quality scenic viewing opportunities coupled with the semi-primitive recreation values. The rugged access for both motorized use and foot traffic provide high quality opportunities for solitude and outdoor challenges. The Western States Trail adds an additional unique recreation element for endurance runners and horseback riding that is recognized nationally. The stream is botanically "outstandingly remarkable" because of known occurrences of Lewisia cantelowii and Lewisia serrata which are located in only a few places and are rare or endangered. Lewisia serrata for example has only 8 known population locations and 4 are on the NF of the Middle Fork American River.

Alternatives: This river is found in alternatives A, D, E, and F.

Recommendation: The North Fork of the Middle Fork American River was considered to be a worthy addition into the National Wild and Scenic River System. The semi-primitive and primitive recreation opportunities and high scenic qualities. While considered outstandingly remarkable, have been identified for many wild and scenic rivers and does not appear to make a national contribution to the Wild and Scenic River System. These qualities represent an outstanding example of a remote river canyon with outstanding primitive recreation opportunities and dramatic, scenic canyon walls.

Land Use and Management Directives: Mining, fishing, and hiking are contemporary uses within the corridor. Placer County has zoned the majority of the corridor as Agricultural with a 80 acre minimum parcel size. The majority of the river corridor is in public land. Should Congress designate the river, semi primitive and primitive recreation as well as the scenic canyon values would be enhanced due to additional emphasis on the protection of these values. Other land use such as logging would be limited within the 1/4 mile corridor and along the steep canyon walls. There would be a emphasis on primitive recreation opportunities. The major resource emphasis within the Tahoe Land and Resource Management Plan is regulated intensive even age timber management (TLMP MA 092 Peavine). There is an emphasis to maintain and improve visual quality by maintaining large character trees in the fore ground along Mosquito Ridge Road at Stumps Bar and at Stoney Bar (TLMP MA 099 Mosquito). Current Forest land and Resource Management Plan Guidelines protect the outstandingly remarkable resources outlined in the river description. The Guidelines do not protect the river corridor form future licensing and construction of dams. The estimated cost to create a management plan for the river would be $35,000. At this time no acquisition of private lands is proposed in any alternative and therefore no costs are projected for land acquisition.

SCREWAUGER CANYON

Description: Screwauger Canyon is a tributary to the North Fork of the Middle Fork American River in the southern portion of the Forest. The creek flows for approximately three miles from Antoine Canyon and Little Grizzly Creek to its confluence with the North Fork of the Middle Fork American River. There are approximately 783 acres within the river corridor. The canyon is characterized by bedrock and boulders for the entire stream length. There are many pools and little deposition or pool filling of smaller cobbles. Conifers on the upper slopes help anchor the soil. Access into the Canyon is rough and can be obtained only on foot without formal trails. There are no utility corridors, public facilities, graded roads, or special use permits within the corridor.

Vegetation within the corridor includes riparian and mixed conifer. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs. Riparian vegetation is also found in other areas of the corridor in terrain that is moist and shaded. There are known occurrences of *Phacelia stebbinsii* and *Viola tomentosa* within the corridor. There are no other known occurrences of sensitive or watchlist plants or plant communities within the area. There is potential habitat for *Eriogonum umbellatum* var. *torreyanum*, *Firtillaria eastwoodiae*, *Lewisia serrata*, *Phacelia stebbinsii*, *Scheuchzeria palustris* var. *americana*, and *Vaccinium coccinium*.

California spotted owls and the northern goshawk are located within the canyon. A PAC (protected activity center) has been established to provide nesting habitat for the spotted owl. There is also potential habitat for the Sierra Nevada Red Fox. Rainbow and Brown trout are found in the lower reaches of the creek. There are no known federally listed Threatened and Endangered wildlife / fishery species within the river corridor.

Eligibility: Screwauger Canyon was found eligible for its remote primitive recreation values. Essentially this part of Screwauger Canyon continues the primitive recreation values identified on the North Fork Middle Fork American River. This segment continues to provide opportunities for solitude and primitive recreation opportunities.

Classification: During the eligibility phase of the study, Screwauger Canyon was classified as scenic due to previous logging activities and the existence of roads on the upper canyon walls but still within the 1/4 mile corridor. Even with the logging activities the overall impression is still a relatively primitive area, with little human development. There are a few unobtrusive mines along the creek.

Alternatives: Screwauger Canyon is found in alternatives A, D, and F.

Recommendation: Screwauger Canyon was not considered to be a worthy addition into the National Wild and Scenic River System because its primitive recreation and rugged river character are well represented in the National System of rivers. This area was not considered to be one of the best rivers for primitive values. The river will be protected by semi-primitive motorized ROS designation in the Forest Plan.

Land Use and Management Direction: Screwauger Canyon corridor has always been a remote, inaccessible canyon with limited mining use. Hiking, fishing, and light placer mining are contemporary uses within the corridor. Placer County has zoned one parcel within the river corridor as Agricultural with a 80 acre minimum lot size. The majority of the corridor is located on public land.

The Tahoe Land and Resource Management Plan resource emphasis for the river corridor is regulated intensive and even-age timber management (TLMP MA 092 Peavine). The guidelines do not protect this canyon from future dam licensing and inundation.

Should Congress designate the river, the remote recreation opportunities would be enhanced due to additional emphasis on protecting these values. Other land uses such as logging would be limited due to the emphasis on remote recreation and scenic values within the 1/4 mile corridor. Mining activities would continue at about the same level. The estimated cost to create a wild and scenic river management plan for Screwauger Canyon would be $5,000. At this time no acquisition of private land is proposed and therefore no costs are projected for land acquisition.

RUBICON RIVER

Description: The Rubicon River is located on the southern border of the Forest within Placer County and a small amount of El Dorado County jurisdiction. The river flows for approximately ten miles from the Desolation Wilderness boundary to its confluence with Hell Hole Reservoir. There are approximately 3,193 acres within the river corridor. The river is characterized by long straight runs and riffles with frequent pools. In the upper reaches, approximately one mile below the Rubicon Jeep Trail the stream begins a series of small and medium sized falls for two to three miles. There are no utility corridors, public facilities, or special use permits within the corridor. Several miles of this river parallel the south boundary of the Granite Chief Wilderness. The area is accessible on the upper end via a system of Forest Service and County roads. The proposed National OHV Trail and the Rubicon-Wentworth Spring Jeep Trail both cross the river below Rubicon Springs.

Vegetation within the corridor includes riparian, mixed conifer, and subalpine. Riparian vegetation grows along the creek banks and contains deciduous trees and shrubs. Riparian vegetation is also found in other areas of the study corridor where the terrain is moist and shaded. There are no known occurrences of sensitive or watchlist plants or plant communities within the area. There is potential habitat for *Calochortus clavatus* var. *avius*, *Erigeron miser*, *Lewisia serrata*, *Phacelia stebbinsii*, *Scheuchzeria plaustris* var. *americana*, and *Vaccinium coccinium*.

California spotted owls and the northern goshawk are located within the canyon. A PAC (protected activity center) has been established to provide nesting habitat for the spotted owl. There is also potential habitat for the Sierra Nevada Red Fox. Rainbow and Brown trout are found in the lower reaches of the creek. There are no known federally listed Threatened and Endangered wildlife / fishery species within the river corridor.

Eligibility: The unique gravel deposition and its associated vegetation and braided channel are considered to be outstandingly remarkable meriting eligibility. The feature is considered a unique hydrological and geiological feature rarely found in a high mountain stream environment.

Classification: During the eligibility phase of the study the Rubicon River was classified as both wild and scenic. The middle segment, which covers most of the river, is classified as wild due to the primitive setting and lack of access and logging activities on private land. The lower segment from Hell Hole reservoir up river about 1 1/2 miles is classified as scenic due to extensive helicopter logging. The upper segment at the wilderness boundary down river about 1 1/2 miles is also

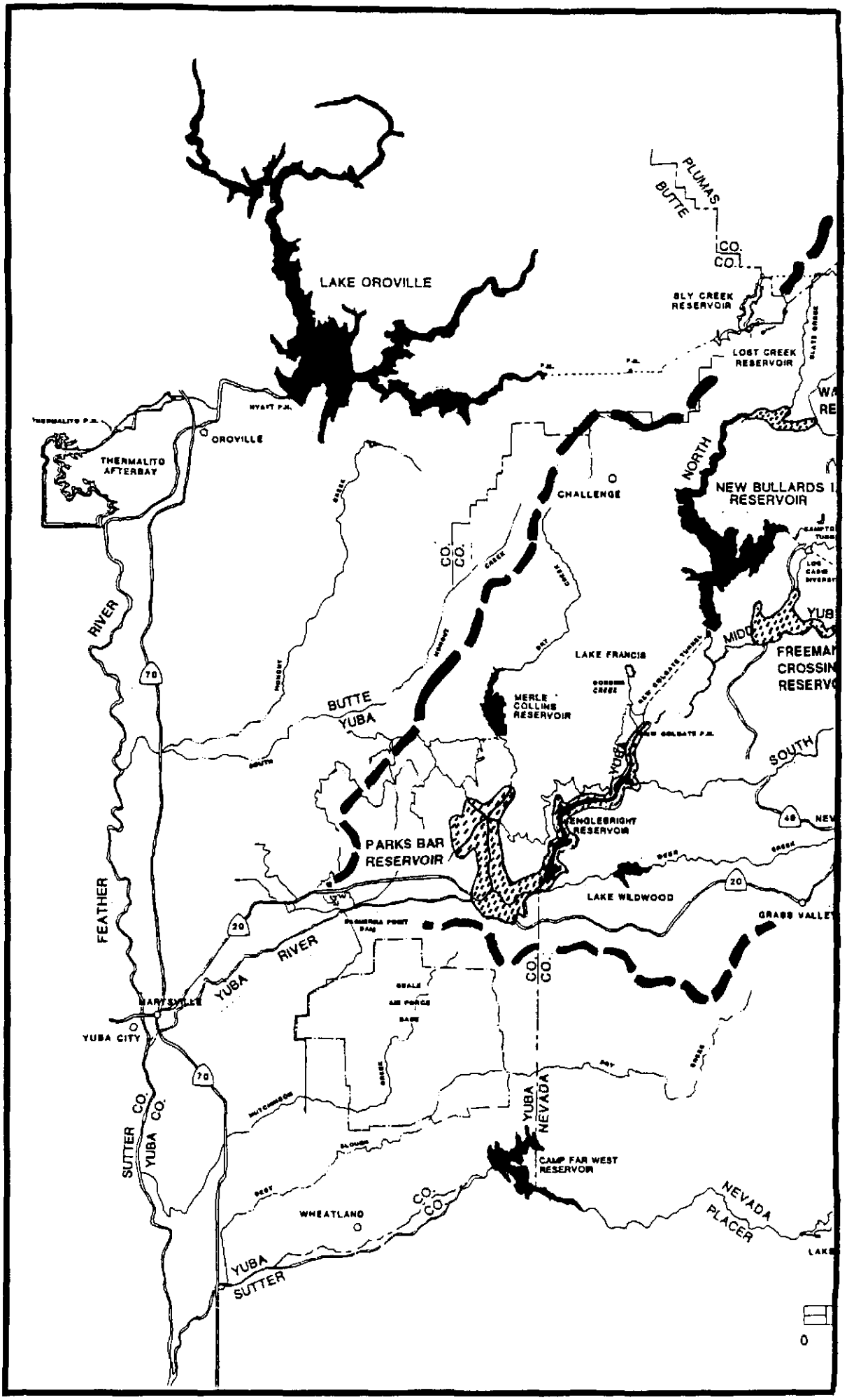
classified as scenic due to motorized access on rough gravel and dirt four wheel drive roads.

Alternatives: The Rubicon River is found in alternatives A, D, E, and F.

Recommendation: The Rubicon River was not considered to be a worthy addition into the National Wild and Scenic River System because the features while of technical interest would have little to no public interest.

Land Use and Management Direction: The Rubicon River corridor has historically been used as a Native American trade route and travel way. Several large timber sales have also been harvested on private land within the corridor. Off road motorized vehicle travel, hiking, and fishing are contemporary uses within the corridor. Placer County has zoned the majority of the corridor as Agricultural with a 80 acre minimum parcel size. The Tahoe Land and Resource Management Plan resource emphasis within the corridor are dispersed recreation, visual quality, and regulated intensive even-age timber management (TLMP MA 105 Barker). The guidelines do not protect the river corridor from future dam licensing or inundation.

Should Congress designate the river the braided channel would be protected from inundation. Timber management within the wild segment would be discontinued. The estimated cost to create a wild and scenic river management plan for the Rubicon River would be $$20,000. At this time no acquisition of private lands is proposed in any alternative and therefore no costs are projected for land acquisition.


LAKE OROVILLE
PLUMAS
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LOST CREEK RESERVOIR
OROVILLE
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NORTH
NEW BULLARDS
RESERVOIR
RIVER
70
BUTTE
YUBA
LAKE FRANCIS
MERLE COLLINS RESERVOIR
FREEMAN
CROSSING
RESERVOIR
SOUTH
YUBA
PARKS BAR RESERVOIR
ENGLEBRIGHT RESERVOIR
LAKE WILDWOOD
GRASS VALLEY
20
FEATHER
YUBA
RIVER
MARYSVILLE
YUBA CITY
SUTTER CO.
YUBA CO.
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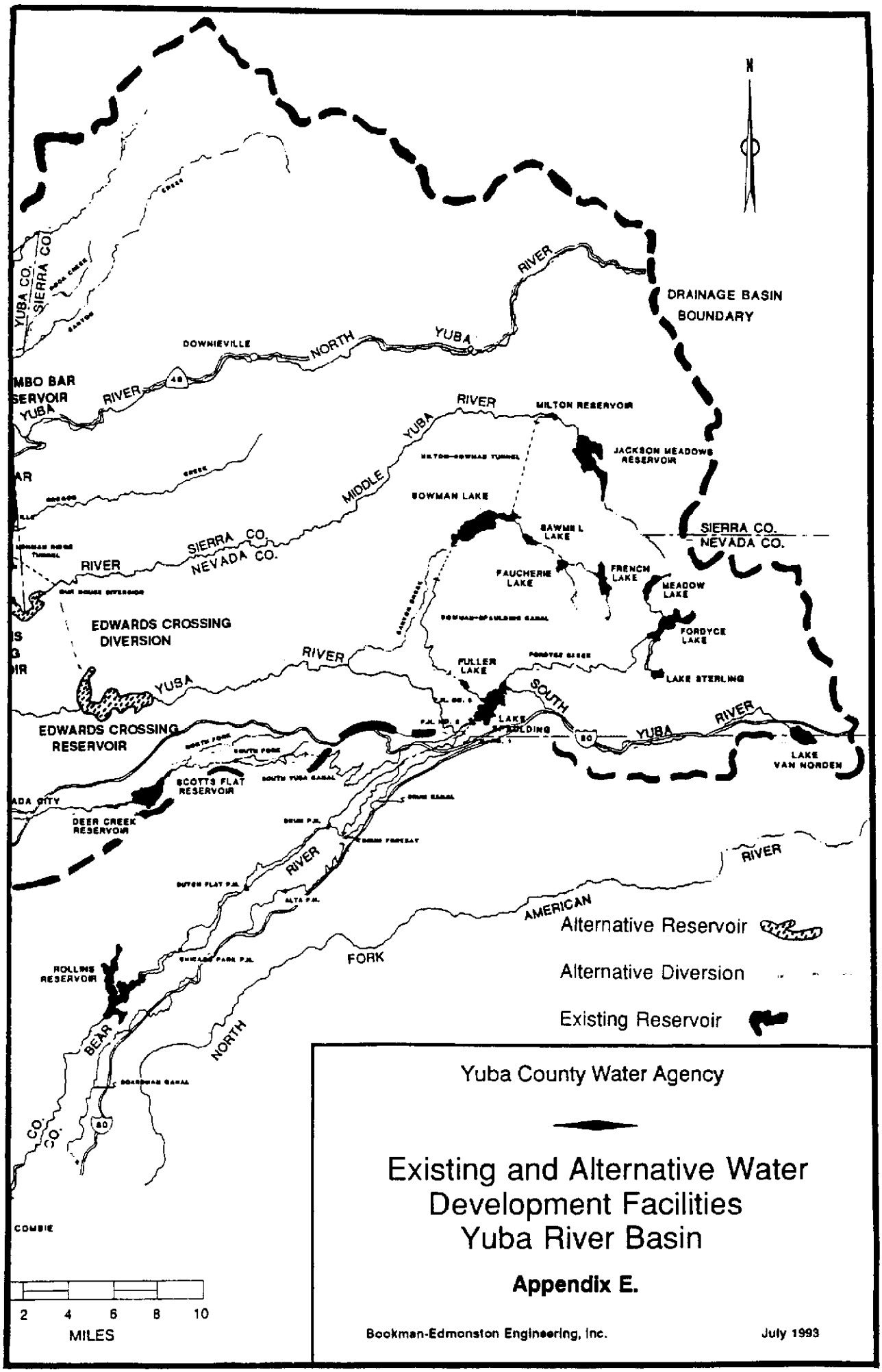

Yuba County Water Agency

Existing and Alternative Water Development Facilities Yuba River Basin

Appendix E.

Bookman-Edmonston Engineering, Inc. July 1993